DOCUMENT RESUME

ED 137 068 SE 021 913

AUTHOR	Vermilye, Gretchen, Ed.; Blanpied, William A., Ed.
TITLE	Proceedings of the Seminar End-Use Regulation: Beginning the Debate.
INSTITUTION	American Association for the Advancement of Science, Washington, D.C.
SPONS AGENCY	Ford Foundation, New York, N.Y.
REPORT NO	AAAS-Pub-76-R-1
PUB DATE	Feb 76
NOTE	116p.; Contains occasional light type
AVAILABLE FROM	American Association for the Advancement of Science, 1776 Massachusetts Avenue, N.W., Washington, D.C. 20036 (free)
EDRS PRICE	MF-$0.83 HC-$6.01 Plus Postage.
DESCRIPTORS	*Conference Reports; Conservation (Environment); Ecology; *Energy; *Energy Conservation; Environment; *Environmental Criteria; Federal State Relationship; *Policy Formation; *Regional Planning
IDENTIFIERS	*Minnesota

ABSTRACT

Reported are the proceedings of an energy end-use regulation seminar held in October, 1975, at Chanhassen, Minnesota, to review the possibilities and effects of implementing energy use legislation in the state of Minnesota. This conference was one of four seminars held by the American Association for the Advancement of Science throughout the United States in 1975 and 1976 regarding regional energy policy planning. (SL)

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End-Use Regulation: Beginning The Debate

Edited by
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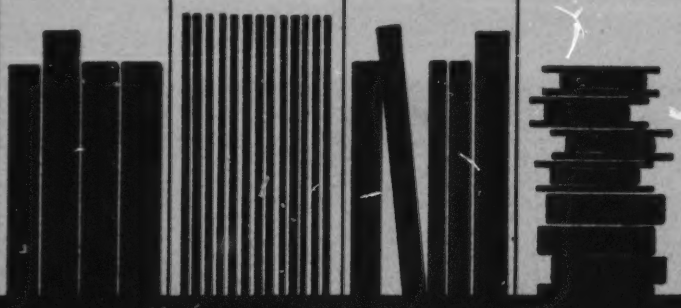
Division of Public Sector Programs

February 1976

AAAS Publication 76-R-1



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PROCEEDINGS OF THE SEMINAR

END-USE REGULATION: BEGINNING THE DEBATE

Sponsored jointly by the American Association for the Advancement of Science and the Minnesota Energy Agency with the support of the Ford Foundation's Energy Policy Project

University of Minnesota Arboretum
Chanhassen, Minnesota
14 October, 1975

Edited by
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American Association for the
Advancement of Science
1776 Massachusetts Avenue, N.W.
Washington, D.C. 20036

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AAAS Publication 76-R-1
February 1976
Division of Public
Sector Programs

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INTRODUCTION

The seminar on "End Use Regulation: Beginning the Debate," which was held at Chanhassen, Minnesota on 14 October 1975 and organized in cooperation with the Minnesota Energy Agency, was the first of a series of four regional seminars co-sponsored by AAAS on regional energy policy planning. The others were held in Albuquerque on 2-5 November 1975, in Cleveland on 2-3 December 1975, and in San Diego on 14-15 January 1976. All four seminars used the Ford Foundation's Energy Policy Project materials as a point of departure for exploring the implications of one or more specific energy-related issues of particular concern to the regions in question. The series itself was one of several regional seminar series which the AAAS has been organizing to provide opportunities for representatives of a range of important societal institutions to explore critical issues with appreciable scientific and technological content.

Although the specific regional issues addressed at the four energy policy seminars necessarily differed, as did the perceptions of the critical national issues themselves, the same implicit questions underlay the entire series: to what degree and by what means can energy policy planning take place at subnational levels? and how can the broadest possible spectrum of citizens become involved in the planning processes? As an energy importing state, Minnesota faces the certain prospect of increasing shortages of oil and natural gas which will result in severe economic and social dislocations unless a long-range plan for the rational use of those resources is developed. The participants

at Chanhassen, including representatives of producer, supplier, consumer, and environmentalist interests; state and local government officials; and members of the legislature, explored the implications of employing a variety of conceivable schemes for end-use regulation and the efficacy of end-use itself as a major component of a rational regional energy plan. The morning and luncheon sessions developed the context for the debate. David Sheridan of the Ford Foundation's Energy Policy Project outlined its principal conclusions. John Millhone, Director of the Minnesota Energy Agency, reviewed the projected energy situation in the state through 1985.

A panel whose members were: Dean Abrahamson of the University of Minnesota's School of Public Affairs, Roland W. Comstock, Northern States Power Company, John H. Herman, Dayton, Herman and Graham, Phyllis Kahn, Minnesota State House of Representatives and Michael J. Murphy, Upper Midwest Council then explored the state's present and future energy situation from their differing perspectives.

The luncheon speaker, Representative P. K. Grant of New Mexico, provided the participants with a perspective from an energy exporting region of the country.

Four afternoon workshops provided the focal point of the seminar. The groups were asked to discuss the same list of prepared topics which were, however, presented to the four of them in different orders. Since the range of interests and backgrounds

represented by each workshop group reflected that of the seminar as a whole, differing perspectives on end-use regulation as well as the problems that would be encountered in putting various regulation schemes into effect began to surface in these small, intense sessions. They accomplished one of the conferences central purposes; to provide opportunities for candid, informal exchanges of hopes, ideas and concerns among legislators, businessmen, regulators and citizens.

At the end of the afternoon a moderator from each of the workshop groups presented a summary of the discussions to a plenary session, after which Charles J. Cicchetti, Director of the Wisconsin Office of Emergency Energy Assistance presented a summary of the discussions that had taken place during the day, and commented on the difficulties he foresaw in developing energy policy plans at the state and regional levels.

The character of the debate that began at Chanhassen, particularly during the workshop sessions, suggests that representative groups of concerned citizens are willing to face up to the fact that a number of the tacit assumptions they may have made concerning the place of their own institutions and their personal life styles within the context of the larger society will have to be critically reexamined if a fair and workable long-range energy use and conservation plan is to be developed. Hopefully the process of reexamining these assumptions and devising action plans based

on that reexamination which began on 14 October 1975 will continue to evolve both in Minnesota and in other parts of the country as well.

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NATIONAL ENERGY CONSERVATION

AND END-USE REGULATION

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NATIONAL ENERGY CONSERVATION AND END-USE REGULATION

Good morning, it's a pleasure to be here. In these troubled times, I think it appropriate to share with you a reassuring old joke. Three men were stranded on a desert island; a chemist, a physicist, and an economist. They were pretty hungry but had just one can of beans to eat. The chemist looked at the can of beans, examined the contents and figured that if they started a fire to heat the can of beans it might explode, spilling the contents to be eaten. But he soon discovered that he couldn't make a fire hot enough. The physicist then looked at the can of beans, climbed up a palm tree and figured out the angle at which, if they threw the can of beans the force would be enough to break open the can. But this wasn't workable either, so the economist then looked at the can of beans and said "assume we had a can opener."

I think this is appropriate in our discussion on end-use regulation of energy, for if we do not institute end-use regulation of energy we remain dependant on the free market system which is based on a number of assumptions.

First, the free market system assumes competition, especially among the producers. Is there competition in the energy industry? That is a question I'll leave for you to consider. Second, it assumes that higher prices will bring forth the technology which is capable of producing more energy and cutting back energy consumption at the same time. The trouble with assuming things about

technology is that you can't predict the nature and direction of its development. The third assumption is that everybody can respond to higher prices regardless of wide variations in capital or income. This is an interesting proposition. A large corporation that is doing well can respond to a 30 or 40 percent price increase in electricity, natural gas or whatever. But there are smaller businesses that don't have the necessary resources and that would have trouble responding to price increases. In such cases small businesses probably wouldn't have the capital to invest in new, and more energy-efficient equipment and, further, they might respond by simply going out of business. On a more personal level, the low income family in the United States spends approximately 16 percent of its family budget on energy, whereas people in middle or upper income brackets pay only 2 to 4 percent of their family budgets on energy. These three assumptions that economists and others make about the market place are troublesome enough to make you want to at least consider the possibility of end-use regulation.

I would like to discuss some of the areas where end-use regulation might be most promising by referring to the findings of the Ford Foundation's Energy Policy Project. These studies show that 40 percent of the energy in the United States is spent in industry. This is considered the area of greatest promise in terms of using energy more efficiently, for industries that have the necessary financial resources available, will

attempt to cut their costs in a competitive situation.

The Energy Policy Project undertook a study of six key industries in the United States: steel, copper, paper, oil refining, aluminum, and cement. These six industries account for almost half of the total industrial energy consumption in the United States. That is, of the nation's total energy consumption, 40 percent goes to industry, and of that 40 percent, almost half goes to just six industries. The engineers of MIT who undertook this study concluded that it was technically feasible for these six industries to reduce their energy consumption by one-third without affecting their output. The question that comes to mind is, "How much new capital will be required by these companies in order to do this?" Well, considerable capital, but another Energy Policy Project study, by a business oriented group called the Conference Board, reported that they believe these key industries will indeed have the financial resources this decade to reduce their energy consumption by one-third. This was based on the scenario of industries responding to the price mechanism of a free market system, not by assuming legislative action, save for governmental subsidies which would be provided for energy efficient equipment.

Another area the industrial researchers of the Energy Policy Project found promising, as far as energy conservation was concerned, was in metal recycling. The process of recycling aluminum takes six to four times less energy than is needed to dig the bauxite, process it and make the product. Unfortunately, in this case,

already imposed regulations encourage the digging and processing of ore rather than the recycling of the end product. ICC regulations provide a price break in shipping raw materials but not for recycled materials. The tax incentive exists for the mining companies rather than for the company or persons doing the recycling.

Another area in the industrial sector where energy consumption was found to be extremely high was in the production of steam. A number of industries studied by the Energy Policy Project produced steam as part of their industrial process; paper making industries provide a prime example. I would suggest that such industries might do well to generate their own electricity and feed the steam, that is usually lost in the generation process, directly into the industrial process. In order to do this, of course, industries need to be hooked up with an electric utility grid. Unfortunately, utilities throughout the United States have resisted this tooth and nail, discouraging people, even though it is more efficient and economical. Producing on-site electricity does not require the Power Commission's permission in most states, but one does have to connect up with an existing grid system, and in several instances the electric utilities have been very successful in denying hook-ups...for what reasons, I'm not sure.

Another area where energy consumption is high is in transportation. Transportation is responsible for 25 percent of the energy consumed in the United States. Of that, a considerable

percentage goes into the automobile. The American automobile has been described, and I think rightly, as the hemorrhage of the world oil system. Detroit manufacturers are now producing and advertising cars that get better gas mileage, a move in direct response to consumers bewailing the higher price of fuel, and demanding more economical cars. Still, today, the fuel mileage of the average American car is only about 13 to 14 miles per gallon. My only comment is that, given our energy situation and the finite nature of our resources, given the price of energy, and the foreign policy problems related to energy, 13 to 14 miles per gallon for the average car is a disgrace. How might the government respond to this, if it responds at all? There are a couple of approaches. First, it could do away with all price controls on oil, causing the price of gasoline to go up even more. People would demand even more economical cars, and that would eventually have some effect, but it would take time. Or the government could take a more active role to prod the process along a bit. State or federal governments could place a tax on the weight or horsepower of cars to discourage buying and producing gas guzzlers. They could also require performance standards on cars. One way would be the graduated schedule where all cars made by 1978 would have to get at least 25 miles per gallon and all cars made by 1985 would have to get 40 miles per gallon. This is the direct regulation approach which, of course, has its own problems, one of which being the grumblings of General Motors and

Chrysler who would be fined for any noncompliance. For this and other reasons, many people question the government's ability to enforce performance standards on cars. A proposal in the Congress now for a federal tax on uneconomical cars has been put forth by Democratic Congressman Fischer from Virginia, an economist. I don't think it has gotten very far but his is the tax approach rather than the regulation approach.

Another aspect of the transportation situation as it relates to energy pits the more energy efficient railroads and barges against trucks and airplanes. Growth is occuring now in moving freight by trucks and airplanes, but the railroads move a pound of freight for about six times less energy than airplanes and four times less than trucks. For those interested in reducing energy consumption, and making a good dent in energy conservation, this is a matter of ICC and CAB regulations. The ICC could change regulations to encourage railroad freight traffic by, for example, allowing the railroads to own trucks, a practice now prohibited. Railroads tell us that if they could own trucks they would become more competitive in the freight business. Another consideration that is currently being discussed suggests providing direct subsidies to railroads in order to increase their competitiveness.

The next highly energy-intensive area I would like to discuss concerns space heating and air conditioning. 20 percent of our energy is spent on air conditioning and space heating. Here again is a situation where people must respond to the market place

value of fuels -- heating oil, natural gas and electricity. But about 35 to 40 percent of the homes in the United States don't have even the most minimal insulation. Given that you can drastically improve energy efficiency by insulation, the question then arises: "how do you get that insulation in the house?" There are a number of ways this can be done. The Michigan Public Power Commission has worked out a system where people insulating their houses can attach the price of that insulation to their natural gas bill and can spread the cost out over a number of months or even years. Added to that, the fuel savings are realized right away. This has been a successful program in Michigan, and has been a helpful one to many lower and middle income families.

Another approach involves the whole area of building codes, a rat's nest if ever there was one. It is one of the most complicated areas imaginable and an area where cities, states, the federal government, you name it, all have a hand. The question one should ask is, "Should these governments demand performance standards for houses, apartment buildings and other buildings?" The federal government has a surprising amount of leverage in this area through the FHA system, Veterans Administration loans, and other HUD grants to public and other housing developments. Obviously, state and local governments also have leverage through their building code regulations. As a normal section of these various building codes, performance standards for energy conservation could easily be included. Now, what I mean by performance standards is nothing

terribly profound, that is, you set a limit to the amount of energy that is allowed to escape from a building. These new standards would require architects and builders to become more energy and energy-cost conscious. The problem now is that architects and builders don't pay the energy bills, the people who move into the houses they design and build do. So the question of how the government might best inervene in this business can be answered through regulations of this sort or subsidies.

I have discussed the three major sectors, space heating and air conditioning, transportation, and industry , that account for all but 15 percent of our nation's energy consumption. A multitude of things, the so-called commercial sector, make up that remaining 15 percent. Farming is included in this category, an area that proved to be one of the best energy bargains in the country. This surprised those of us in the Energy Policy Project because we first thought of the energy intensive fertilizers, and big tractors used by American farmers. But, compared to other economic activities, the energy consumption on farms makes farming a real energy bargain. An upper middle class family in a Los Angeles suburb with two cars and a lot of commuting might very well have a higher per capita energy consumption than a farmer. We did see many food production activities that needed energy conservation, but one related activity that was most conspicuous in terms of energy intensiveness was packaging. The United States is probably the only country in the world that wraps its tomatoes in petroleum! Projections for the

plastic industry to the year 2000 indicate enormous growth due primarily to the packaging of food and consumer goods.

We've looked at several major areas of energy consumption and pointed out the areas where regulation and conservation practices would cause the most substantial impact. Let me just add one more point, and that concerns the ripple effect caused when you save or conserve energy. During the Energy Policy Project studies we discovered, to our astonishment, that in the industrial and transportation areas, for every three or four BTUs saved at the point of consumption, another 1 BTU is saved at the point of production, a nice little bonus. But it is important to realize that at the same time this means that it takes energy to produce energy.

If I am asked from a national perspective what our federal government is doing about this, I'm very tempted to say they are doing zip about energy conservation. The prevailing conventional wisdom in the federal government at this time is that raising energy prices will do the job, so as a consequence there are scores of imaginative approaches that the federal government could consider but hasn't. As far as I know there has been only one effective and substantial energy end-use regulation in this country since the Arab oil boycott of October 1973, and that is the 55 mile per hour speed limit. Unfortunately, not all states are taking this seriously. It sounds simple, but if, as a state, you are interested in saving energy, you should enforce the 55 mile

per hour limit. Whether it is a popular measure or not, you will be saving a lot of energy.

The major problem is that there is no consensus in the Congress for developing a national energy conservation policy. We have one large federal bureaucracy, the Energy Research and Development Agency, that has a budget of well over a billion dollars, but I don't think they spend even 1 percent on energy saving technology... that gives you an indication of how people in Washington are thinking about energy. It does not appear that the government is spending any money on energy saving technology, or providing support in the way of subsidies or tax relief to businesses or individuals who are attempting to save on energy. That's the shape of the matter in Washington now but the opportunities at the local level, for that reason, seem to be quite promising.

In closing, the essence of A Time to Choose, that came out in November 1974, is that the United States can have a prosperous, growing economy and at the same time can reduce its energy inefficiency quite drastically. We looked at three different energy consumption growth rates. First we considered an historical growth rate of about 3.4 percent per year, which, by the year 2000, adds up to 187 quadrillion BTUs of energy. In 1973 we consumed 75 quadrillion BTUs which is to say that we are in a situation that the scientists call exponential growth. The second energy consumption growth rate, the technical fix scenario, assumes the implementation of all the technically feasible energy conservation ideas without changing the life

style of any American. Our study found that we could reduce energy consumption to a rate of about 1.9 percent a year, which means consumption of 124 quadrillion BTUs by the year 2000. That's still a lot of energy. The third scenario studied, zero energy growth (ZEG), assumes the implementation of all the technically feasible energy conservation ideas plus changes in American life style, but with no basic changes in employment or GNP. This would require a gradual implementation, of course, and according to our study, the zero energy growth rate could be reached by about the year 2000, at which time our consumption rate would be about 100 quadrillion BTUs.

Some of you might like to know how well the Energy Policy Project's final report has been received by Congress. The answer is quite simple. The ZEG scenario has gone over like a lead sinker. Some people seemed to think that it was too radical, but environmental groups criticized us for being too timid. They thought we should have designed ZEG to occur by 1985 instead of by the year 2000. Most of the elements of the technical fix scenario, however, have been translated into pieces of legislation that are being considered primarily through the good offices of a few members of Congress such as Morris Udall and Adlai Stevenson III, who have become extremely interested in doing something about energy conservation.

WHAT CAN END-USE REGULATION ACCOMPLISH FOR MINNESOTA?

John Millhone
Director
Minnesota Energy Agency

Presented by

Phillip W. Getts
Deputy Director
Minnesota Energy Agency

WHAT CAN END-USE REGULATION ACCOMPLISH FOR MINNESOTA?

At the outset, I want to express my keen pleasure in participating in this program with the Ford Foundation and the American Association for the Advancement of Science. With the probable exception of the Arab embargo, the Ford Foundation's Energy Policy Project has done more than anything else to alert the American people to the seriousness of the energy problem. The AAAS has a long history of constructive contributions to the humane practice of the sciences

I also want to thank Phil Getts and Ron Visness of the Minnesota Energy Agency staff for memoranda on today's topic from which I've plagiarized shamelessly.

At an Energy Conservation meeting last week, Colorado Governor Richard D. Lamm recounted a Russian proverb that is appropriate to today's theme.

It seems a Russian peasant was walking down the road and saw a canary flying in the same direction. The canary wasn't watching where it was going and ran smack into a tree and fell stunned to the ground.

The peasant picked up the canary and looked at it--wondering what to do. Then he spied some fresh cow dung nearby and, hoping it was warm and rejuvenative, he placed the canary on the cow dung.

It worked. Soon the warmth revived the canary and it sat up and started to chirp--at which time a large tomcat came out of the bushes and knocked the canary out of the cow dung and killed it.

Now, as in most Russian proverbs there are three morals. First, it isn't always your enemies who put you in it. Second, it isn't always

your friends that take you out of it. And third, when you're up to your neck in it, don't chirp.

The story illustrates the verities of the energy crisis.

It wasn't our enemies who put us into it. The energy crisis was forming long before the Arab embargo. The Arabs, in fact, called our attention to the problem earlier than would otherwise have been the case.

And our friends won't take us out of it. The crisis does not involve a clash of interest groups where one can ally oneself with one's traditional friends. We are all in it together.

And third, there has been quite enough chirping already. It is time to get on to more serious sounds.

Any useful discussion must include some definition of terms and at the outset we should define the "energy crisis." It is merely the sudden realization that past assumptions about the abundance and low price of energy were ill-founded. Energy is more scarce and expensive than we believed. We will have to pay more for it and get along with less of it than we anticipated.

The crisis is not one of short supply--but short-sightedness. The problem involves two factors--diminishing supplies and compulsive consumption--and the growing gap between them.

Comparisons among states are difficult because each state's situation is unique, but Minnesota's situation illustrates the seriousness and nature of some problems faced by the states.

Minnesota obtains about 46 percent of its energy from petroleum products, some 60 percent of which comes from the three refineries in the state and a nearby refinery in Superior, Wisconsin, that rely

largely on Canadian crude oil. However, Canada has recently announced plans to end all exports in the early 1980's. If these curtailments continue and if no way is found to replace this Canadian crude oil, the Minnesota and Wisconsin refineries will be forced to close. Needless to say, we are "busting a tug" to replace this Canadian crude oil, and it is this issue that is keeping Mr. Millhone from this meeting today.

The second largest source of energy for the state is natural gas which in 1973 met 32 percent of Minnesota's needs. Here, too, there are supply problems. The Northern Natural Gas Company, which provides 95 percent of the gas sold in the state, has filed statements with the Federal Power Commission which show steadily declining reserves. During the next few years, a Northern Natural spokesman has projected about a 5 percent annual decline in Minnesota deliveries with all large-volume interruptible users being curtailed by the winter of 1977-1978.

Northern Natural Gas projected that, even if an Alaskan natural gas pipeline is completed and in use by 1980, curtailments will continue so that by 1985 all interruptible and large firm industrial users will be curtailed. If the pipeline is not completed, Northern Natural expects to curtail all its customers except residential and small commercial users.

The third largest energy source for Minnesota is coal and here the outlook is more promising. The state has the advantage of being closer than many other buyers to the western coal fields in Montana, North Dakota, and Wyoming. However, use of this resource will be shaped by regulatory decisions in such areas as transportation, air

pollution and water use. Large shifts in energy use are expected. It will take the Northern States Power Company more than 200 90-car unit trains carrying 100 tons of coal to transport the coal needed to offset its anticipated curtailment of natural gas by 1977.

The remaining 4 percent of the state's energy comes from nuclear and hydro generating plants where no supply additions are expected during the next ten years.

From this brief rundown, it is clear Minnesota faces energy supply problems which call for immediate, concerted action.

In the worst possible case, the state could lose 60 percent of its petroleum supplies and 40 percent of its natural gas. Even with a comprehensive conservation program and the accelerated use of coal, this would mean large-scale unemployment, economic distress for many individuals and businesses, and considerable social unrest.

Let me hasten to add that this is not likely. There are things which can be done to reduce these energy losses. There are things which must be done to use the energy we have more efficiently.

But there should be no underestimation of the seriousness of the energy situation. Its impact has been camouflaged by two events: the recession has subdued the normal growth in industry's demand for new energy, and the world-wide inflation--rising at even a faster rate than U.S. inflation--has made it possible for the United States to spend $25 billion for imported crude oil without a severe imbalance in its balance of payments. However, as a more normal business climate develops, both nationally and in the world economy, the severity of the energy shortfall will be upon us with a fury greater than that of

earlier energy crises.

Although there are many uncertainties in this area, there is one certainty. We won't use more enrgy than we have. There will be an accommodation between supplies and use.

But how will the accommodations occur? How will we close the gap? How do we determine who will have first call on a desirable fuel, such as natural gas? Who must undertake the costly, time-demanding process of finding alternate fuels?

Using broad strokes, there are three kinds of mechanisms that can be used to answer these questions--"jawboning", the market place, and legislation.

"Jawboning", the use of voluntary appeals, is everyone's favorite--when it will do the job. Americans clearly would prefer to do something because they are asked to do it, not because they are forced to by spiraling prices or new laws. Voluntary repsonses to energy problems occasionally have been impressive, but, unfortunately, few of us will make long-term sacrificies when we're given unclear and conflicting signals about the nature and severity of the problem.

The market place, the use of economic incentives and disincentives, is the tried and true, traditional method of influencing human decisions. The energy shortfall could be met simply by allowing prices to rise until the available energy would be purchased by those who could afford it although this would have a harsh impact on low income persons and would dampen efforts at economic recovery.

Legislation--the intervention by government-- has been a frequent recourse when "jawboning" and price changes were inadequate

to meet the social and political goals of the majority.

The governmental role may take several forms. It may be informational, and there is much that can be achieved by a state energy agency that becomes an accurate, credible source of information on energy sources and uses, and what can reasonably be expected in the future.

Or the government role may have an indirect effect on end-use decisions.

A closely related step is "What-would-happen-if" research. This includes econometric modeling, questions of emergency responses, statistical analysis the stimulation of the result of different decisions, and the development of plans for energy emergencies.

The third step is more active intervention in order to stabilize the situation, reduce the waste of an energy product, counter the possibility of excessive profits or allocate a scarce resource fairly across the population.

Legislation may have an indirect effect on end-uses of energy and some examples in Minnesota include:

-The energy efficiency requirements in building codes which will go into effect January 1, 1976.

-The Certification of Need Program, implemented in October, 1975, that is designed to provide a public role in decisions to build major new energy facilities.

-The Energy Agency's efforts to get the Public Service Commission to adopt time-of-day rates in the Northern States Power rate case to encourage more efficient use of generating stations.

In these, and in such proposed legislative areas as air conditioner standards and the mandatory insulation of residences at the time of sale, the Agency is seeking to affect indirectly the amount and pattern of energy use.

All this is fine and good, but when end-use regulation is mentioned, it usually conjures up another type of intervention--the direct allocation of energy resources to certain users or classes of users. There are two current examples. The Petroleum Allocation Program is under a stay of execution and the FPC's proposed Natural Gas Curtailment Priorities, and the many variations of curtailments, are being tried and developed by different gas pipelines and distributors.

Finally, I can sense my audience thinking, he has gotten around to where we thought he was going to start. I apologize for the length, but not the course of the tour. It was necessary to show several important things about end-use regulation.

First, in an energy-short economy, there will be some form of energy allocation.

Second, there are a variety of mechanisms available to provide this allocation.

Third, one of them is governmental end-use regulation.

"Regulation" may be defined as the process of setting prices and allocating supplies or services according to decisions made by government institutions and implementing those decisions through governmental enforcement.

End-use regulation is a topic which is endlessly and uselessly confusing. The phrase immediately conjures images of a sprawling and

complex bureaucracy populated by small-minded bureaucrats making decisions with enormous impact but with no necessary relation to reality. The clamor of the resulting debate cannot conceal its lack of content and resolution.

Despite these responses, regulation is neither inherently good nor inherently bad. "Good regulation is good, and bad regulation is bad!"

If regulation achieves our social and economic goals, it is good, if it frustrates those goals, it is bad.

Similarly, there is no inherent virtue in a "free" market place, that is, one without regulation. If that market allocates goods and services to serve society's goals, it is good, if those goals are not served, the market is "bad."

Historically, this country has given the market place the first opportunity to serve society's goals, but where the market place has failed--or at least has been perceived to have failed--some kind of regulation has been imposed. Railroads, motor carriers, air line operation, stock markets, and natural gas production are but a few examples.

The critical point here is <u>not</u> the familiar rubric that end-use regulation is "bad" and the free market is "good." Rather, the central question is whether our present assortment of government regulators and free marketers are capable of adequately responding to the energy shortages predicted for the next ten years or longer.

To answer this question, we must first identify our goals and priorities concerning allocation of available energy supplies. Several

can be stated easily: avoid economic disruption, allocate supplies fairly, avoid undue penalties against any single producing or consuming sector, e.g. the poor, maintain reasonable levels of employment, avoid regional shortages of particular fuels, e.g. a natural gas shortage in the middle-Atlantic states, and so on.

The answers become more difficult as the questions become more specific. If fuel oil is in short supply, should available supplies go to rural farmers who have no alternate supply or go to urban hospitals and schools? The natural gas shortages are growing severe, should available supplies go to homeowners, the taconite industry or for the production of anhydrous ammonia?

The task of answering these questions is probably the domain of the legislature. The legislature is traditionally the institution best equipped to listen to all the voices, to consider all the arguments, and to sort out and choose among conflicting solutions. Even with its admitted imperfections, the legislative process is the best method of choosing our energy goals and priorities.

Yet this job cannot be done if the questions are not raised now. The legislature is substantially a reactor; initiative does not often come from our deliberative bodies on such difficult questions. The recent troubles of the U.S. Congress concerning a "national energy policy" amply prove this assertion. The questions--and suggested answers--must be raised by the public, by the energy suppliers, by the energy users, and by others concerned with our economic and social future. Thus, the first step in the debate over end-use regulation will be--and <u>must</u> be--a profound discussion of priorities and objectives,

uncluttered by the participants' feelings about the past success or failure of government regulation.

The second step in the process is the consideration of specific regulatory mechanisms. Although there are exceptions, the regulatory mechanisms have not functioned well, particularly at the federal level.

The goals of regulation often have become uncoupled from the regulatory mechanism as time passes. The reasons which compelled the formation of the Interstate Commerce Commission in 1889 do not support continued railroad regulation in its present form. Mr. Justice Douglas--a former head of the Securities Exchange Commission--suggested all regulatory agencies expire on a specific date--he suggested 30 years.

The point here is not the simplistic notion that all regulatory agencies should self-destruct, but that the nature and duration of the regulatory instrument should be consistent with the reasons for creating the mechanism in the first place.

The energy crisis is ushering in a period where the regulatory function will be far more important than it has in the past.

Energy shortages are part of what economist Kenneth Boulding has characterized as the shift from an image of Man as the Cowboy to one of Man as the Spaceman. For most of our history, the cowboy has been our model, the lone man crossing the plain, subduing its resources. But the plain is becoming crowded, the grass is giving out.

Instead of a land of infinite resources, we are finding that our riches are finite. The cowboy image must be traded in for the image of the spaceman, a man at home in a far more regulated environment, where the resources are carefully preserved for a long voyage.

The energy crisis is a forerunner of other changes. We have a natural resource crisis. The geological survey informs us that the U.S. presently imports at least an important percentage of 69 of the 72 raw materials needed to maintain our standard of living. Of the 13 minerals identified by the survey as the most essential to our economy, we already import more than 50 percent of six of them--aluminum,manganese, nickel, tin, zinc and chromium.

The question in the future will not be simply who gets the available energy, but who gets the available resources. We are at a hinge of history. It is difficult to peer around the corner, Let me encourage you in your discussions today. You are involved in a project of considerable implications.

PANEL DISCUSSION

PERSPECTIVES ON END-USE REGULATION

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PERSPECTIVES ON END-USE REGULATION

DEAN E. ABRAHAMSON: I am pleased to be here this morning. My role apparently is to keep the peace, watch the clock, and finally, I am entitled to interject my own comments on the subject at appropriate moments. The panel presentations we will hear this morning will follow in this order: Mr. Comstock, Mr. Herman, Mr. Murphy and Representative Kahn. Our first speaker, Mr. Comstock, is the Vice President of Communications at Northern States Power Company and has been involved with these matters for many years.

ROLAND W. (Rollie) COMSTOCK: It is important for us to start with the understanding we all have a shared involvement and function in the energy future, and this comes from the realization that, in terms of energy, there remains only a question of time. I think it is important to share this perspective, for it will obviously make a lot of difference in our approach and our attitudes towards end-use controls. It is my feeling that the next major impact of the growing energy crisis can be expected in the next 3 to 4 years with the gradual cut-off of natural gas supplies. Further, I feel another crunch will come within the next 10 years as a result of the economic pressures that will be placed upon our system with ever increasing amounts of oil imports. I am personally convinced that we have not seen anywhere near the end

of the recession, and that it will be with us until close to the end of this decade, if not longer. Frankly, I think that all the significant energy problems due to impact on this state and this nation will continue at length, too.

From that perspective, and it is a gloomy one, I want to make a few other preliminary remarks. One is to tell you about what's happening in the Northern States Power's electrical system with regard to energy consumption. Secondly, I'll share some personal speculations about what might happen in the future with regard to the public's consuming patterns, and third, I'll offer some views on what this might mean for end-use control. Lastly, given enough time and interest, I'll give a brief description of what NSP is trying to develop in the interest of promoting energy conservation.

On a chart representing residential use of electricity in terms of kilowatt hours per customer, you will see a drop in usage in the latter part of 1972, with a rise again in early 1973. But a fairly steady and significant decline in consumption is noticeable over the following two years. The chart also makes clear that the trend in residential consumption which had been declining over those past couple of years has clearly turned around and is now rising at a rate which is a little bit less than the historical rates. This pattern is basically repeated in other sectors -- small commercial, indistrial, and large manufacturing and non-manufacturing industries. Putting

all this together in terms of what has happened (and is happening) certain other things are clear. Minnesota was one of the first states in the country to begin this declining electric use. It probably occurred here almost a year earlier than it began to appear generally throughout the nation. There are a number of factors which might have been responsible for this including the economic down turn, and what seems to have been a sudden change in a lot of public values relating to energy consumption and conservation. The public's response was very uneven in the state of Minnesota. Office and business buildings really came on like gangbusters, by reducing their consumption by 14% while other sectors reduced by only 4 to 6%. This reduction tended to be more a metropolitan or big city phenomenon than it was rural. The exception was the large rural industrial customer whose consumption leveled off but showed no real decline. There is one sector, the manufacturing sector, which is still declining at a rate of 5 to 6%. Generally, however, there is a current rise in the consumption of electricity. Some sectors are growing faster than others, but with the exception of manufacturing, everybody is on the rising trend. It is a personal view of mine that we will see more gangbusters in terms of electrical demand within the next 5 or 6 years.

There now exist 140 "interruptable" customers served by natural gas we get from the Northern Natural Gas Company.

They're going to be curtailed according to a schedule, with a final 100% curtailment occurring in 1978. The significant point to note is that we are talking about 95 million BTUs of energy for these customers which will no longer come from natural gas. Something's obviously going to have to happen and if you consult the national data, which is very fuzzy and unclear, it seems that when this sort of situation occurs, about 1/6 of that BTU load tends to go somewhere else if they opt to stop operation, about 1/3 tends to convert to oil, about 1/6 to coal, and about 1/3 to electricity. No matter how one juggles these figures we are talking big numbers with regard to possible demand on the electric system. Ninety-five million BTUs of natural gas translates into a new demand of 1700 megawatts by 1978. Obviously not all that energy will convert to electricity, but we are still talking of very significant numbers. My guess is that we've got some problems with gas in terms of the electric system's ability to supply this replacement energy.

As I see it there are three approaches to end-use control which the government can take. One is to actually regulate what the customer can and cannot do with that energy, another is to provide incentives, and/or penalties through price mechanisms. The third approach to end-use control, as I see it, is just plain allocation or rationing, which really means interrupting the supply to the user or to the supplier with much the same effect.

DEAN E. ABRAHAMSON: Let me just interject that I think we all can expect the price of natural gas to increase dramatically, perhaps by several hundred percent, in the near future. Last spring I sat in on some hearings before the Public Service Commission where I saw literally tens of individuals representing retired persons, elderly people on low fixed incomes, stand up to demand that there be a decrease in prices because even the present rate structures were putting uncomfortable demands on their budgets. I sat there thinking about what's going to happen to these people when natural gas prices really make their move upwards. My own feeling is that we're going to see a consumer revolution or revolt such as we haven't seen in a long, long time.

Next we have John Herman, an attorney of the firm of Dayton, Herman, and Graham in Minneapolis. John has been active in the consumer and environmental movement here in Minnesota for many years and has been deeply involved in energy related matters for much of that time.

JOHN H. HERMAN: I would like to begin with some general thoughts which I know others will discuss and then use the majority of my time in discussing with you a particular study, which I had occasion to become very familiar with, "The Costs of Sprawl", which evaluates housing and energy use.[1] This study was the focus of much testimony in the contest of a recent piece of litigation, Cedar Riverside

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[1] The report was prepared jointly for the Council on Environmental Quality and the Department of Housing and Urban Development, by the Real Estate Research Corp., April 1974.

Environmental Defense Fund v. Lynn, Civ. No. 4-73-592 (D.M.N.1974), (hereafter "CREDF") in which the Court made extensive findings on the energy implications of various housing designs. (See Special Masters Findings, August 30, 1974.) Through that report, I will relate my concern about the congruence of social values and energy conservation, the possibility of their compromise, and of an outcome entailing energy conservation within the political framework.

Today, we are posing the question, "Should there be end-use regulation?" I think that is the wrong question and that we should be asking, "What kind of regulation is desirable?" We are dealing with an area which is pervasive, extending into the areas of pricing, tax incentives, tax policy as well as direct controls. In many instances we are now operating in a "regulated" environment with application of several of these elements either fostering energy use or conservation by directing behavior. The real issue is whether we are going to change these "end-use" control elements in order to accomplish a more energy conserving outcome.

A point that Mr. Sheridan raised this morning is important to repeat in this context. You cannot deal with end-use regulations with regard to one kind of fuel without recognizing the need to deal simultaneously with the concentric circles which imply involving impacts on other fuels. Any consideration of different kinds of end-use regulation must recognize the interdependence of all kinds of fuels.

Now let me discuss what I consider to be the key problem. Any reasonable approach to energy conservation and end-use regula-

tion will begin only when there is a sense of political agreement that the country's social value ethic is ready for a move toward energy end-use regulation and conservation. The essential dilemma is that most people do not now share a belief that there exists a congruence between the values of the American ideal and conservation of energy. Conservation is viewed as requiring sacrifices inimical to material and personal "success," "satisfaction," or "fulfillment." Partially, this stems from a continuing belief that the "ideal" posits, if something is good in a certain degree, more of it is even better.

The report, "The Costs of Sprawl" which analyzes housing design in light of energy use implications of such designs, was one focus in part of the CREDF litigation involving the Environmental Impact Statement (EIS) for the new town of Cedar Riverside. Housing there is being built at 125 dwelling units per acre. This figure becomes critical when placed in balance with the overwhelming public preference for the single-family, detached home, and the energy impact of such housing. To provide some perspective on these figures: townhouses can be built from 15 to perhaps 30 dwelling units per acre; garden style, walkup apartments are generally built from 20 to 40 dwelling units per acre; but, from about 50 to 60 dwellings per acre, even with the tightest of planning, elevator buildings and high-rises are unavoidable. Cedar Riverside is obviously a paradigm of a very high density, all high-rise, all elevator building project. The EIS generalized that it would be a very energy efficient project because of its density, purportedly based on the findings of "The

Costs of Sprawl."

The conflict is immediately apparent. Surveys querying the people who live in the Cedar Riverside project's first stage, have indicated that every population group in the housing project, from students (who you would expect to have tolerance for a high density, highrise living enironment) to families with children, believe that it is an unsuitable housing type and that their stay in that type of housing will probably be less than one year, and certainly less than two years. Surveys also reported that occupants chose Cedar Riverside for reasons unrelated to the design of the housing; their reasons included the subsidized price of the units, and their proximity to the university. Virtually all of the occupants surveyed hold the expected ideal for housing, the detached, single-family house with garage and privately held parcel of real estate. Over such a domain they have proprietary control and can police visitors' behavior; there is a sense the domain extends beyond the immediate dwelling unit. The issue then is, do you have to go to a Cedar Riverside for energy conservation, or is there an alternative which is more congruent with the single-family home ideal, which will accomplish the same or better conservation, and which will be consistent with social values?

The facts of the report explode the basic fallacy of the generalization that high-rise, high density housing is more energy efficient. In the first place, the high density mix evaluated in "The Costs of Sprawl" is not 100 dwellings per acre, or even 30 dwellings per acre. It is 19 dwellings per acre, which is to say

no more dense than many of the blocks in South Minneapolis which have one or two small walkup apartment buildings and the rest single-family homes. The high-rises in "The Costs of Sprawl" which represented only 30 percent of the high density mix, are built at six stories and only 30 dwellings per acre.

Let me explode a second part of the fallacy, with respect to energy use per dwelling unit in Cedar Riverside--actual energy use as shown in the EIS (but ironically never referred to in, or compared with, the EIS conclusions or with the erroneous generalization from "The Costs of Sprawl" that high-rise equates with conservation) was 10-12 times higher per dwelling unit than energy use in the average Minneapolis single-family home. There are a number of possible reasons for this, most importantly, that in high-rise, elevator buildings you are dealing with much increased costs for circulating cooling and heating air, pumping water, operating elevators, and possible insulation problems. Distortions also appear because energy uses (e.g. outdoor lighting), which are not needed for individual dwelling units must be considered for such a project. It suffices to say that energy use per unit is markedly and significantly higher in the project than it would be for a single-family home.

With respect to automobile use in high density housing, a number of studies of other large scale housing projects indicate that the decline in trips per dwelling unit per day, bottoms out and reaches diminishing returns at densities in the 30 to 40

dwellings per acre range. Two other related factors are; first, the capital costs of infrastructure construction cease to decline at 40 to 50 dwellings per acre because you must rely on much more heavily engineered, much more elaborate systems for delivery of sewage, transportation, etc; second, and perhaps more importantly, in terms of the availability of housing in the market, capital costs per dwelling unit increase markedly when you go beyond 20 dwellings per acre, and move to buildings requiring elevators and first-class construction.

The alternative is obvious and provides a classic case of the kind of congruence we are seeking to reconcile in energy conservation and social ideals. At 19 to 30 units per acre garden apartments or townhouses can be built which are much more congruent with the single family, detached home ideal than highrises. They can have semi-private open space, visual contact between people in the units and outside, and adjacent semi-private play areas for children. Four or five families can share an entryway, which provides a sense of policeability of and proprietary relationship to space beyond the dwelling unit. In other words, housing can be built which is much closer to the kind of housing ideal most people have. As for energy end-use, such densities provide maximum conservation both in per unit energy use and auto trips. Yet this congruence has been masked by generalizations about sprawl, density and energy use, and far too much highrise energy-inefficient housing has been the result.

Housing, which I have focused on, is one of the most complicated (in terms of the government controls that exist) and depressed industries in the country today. Tremendous incentives exist for single family, detached home ownership through FHA and GI mortgages, and through special programs like the recently enacted $2,000 rebate for buying new homes. Significant incentives also exist for the development of multi-family, highrise, elevator buildings of very high capital cost both in terms of the direct governmental programs of mortgage insurance and of tax incentives such as tax sheltered depreciation. Local governmental programs of clearance, land write down and urban renewal also have often emphasized very high density housing to maximize tax payments (generally without calculation if costs exceed benefits).

Enough said. What I have sought is to show there can be a congruence at least in this area, but that there is a very complicated network of governmental control that exists now which pushes in the opposite direction. In terms of energy conservation, this requires careful and systematic revision of governmental controls and programs in housing, but the public housing ideal is not an impediment.

DEAN E. ABRAHAMSON: The next speaker is Mr. Michael Murphy, who for the past couple of years has been associated with the Upper Midwest Council. Most recently he supervised a major study on the potential for and problems associated with massive exploitation of Western fuel resources.

MICHAEL J. MURPHY: Within almost anyone's scenario of our short-term energy future, we will be faced within the next few years, with what appears to be an unending series of shortage situations in any number of locations in the U.S. In this region, given current estimates of available oil and natural gas supplies between now and 1980 and 1985, we face some difficult times. According to Minnesota Energy Agency data, which all of you have received, even with significant energy conservation, the shortfall is a serious one. To not believe these figures is, in my mind, courting disaster. To not move today to develop alternative plans of action is even worse.

Before we implement systems to distribute available energy supplies, we need to recognize that we have to deal with some very basic limits. They are: TIME, MONEY, and POLITICS. We need to look at time in these ways. First, our short vs. long-term problems will be upon us before we have time to develop physical supply and use alternatives which will erase the supply and demand gap. The combined effect of natural gas curtailments and loss of Canadian oil, coupled with higher prices for both, will be here sometime in early 1978, before we can replace either fuel substantially.

Our ability to convert to other fuels or to reduce or discontinue use of some fuels for some activities is largely a function of having alternatives available. It also is a function of convincing the consumer of the need for conversion to other fuels and alternative activities; a program which will require considerable

time.

Time is important in another way. We can, given the political will, create end-use controls which will ban the use of natural gas for some things such as outdoor lighting, electric generation and other boiler-fired systems, some petrochemical operations of questionable value, like packaging, wrapping and the like, too. We might even consider banning any new hookups for natural gas service unless it can be demonstrated that no alternative exists. I only throw that last thought out because, since the degree of seriousness and timing of our natural gas situation is so uncertain, it makes little sense to me to continue to aggravate the problem. These are all short-term actions, however, and provide only limited results. Also, they are, as is obvious, politically risky; and there are, no doubt, valid exceptions to be considered.

We can use price mechanisms, too, but they are, in my mind, not applicable to the immediate problem of the next few years -- for two reasons. First, they work only if we've the will to let the marketplace operate as we've always been reluctant to do in the past. We have to be willing to accept the economic dislocations in the short-run in order to arrive at some kind of marketplace equilibrium in the long-term. I frankly don't see this happening. If we promote higher prices to shift usage, we must be sure that energy alternatives are available and at an acceptable price. If we raise prices to curtail use, we must be sure that those users affected can continue to operate in the short-term, can maintain employment and productivity, or can convert to other processes and other product lines and/or activities which will allow them to continue economically.

If we raise energy prices, we will experience serious economic dislocations in some population sectors, in some regions of the nation and in some levels of business, depending upon the size and nature of the business. To minimize the effect of these dislocations, some would institute a complex set of pay-back actions, subsidies, tax credits, penalties, and the like. The basic problem is that the marketplace reacts, it does not anticipate. This is particularly true when we are talking about immense amounts of money changing hands with rapid price hikes and with the multiplier effects of higher energy prices throughout the country.

I would hasten to point out that the mere knowledge that higher energy prices can make it worthwhile to invest heavily in alternative fuels and energy use systems today and capture operating savings over the long-term, does not always mean that such decisions will be made--and for a couple of important reasons. One, we are totally unaccustomed to that kind of thinking and we will not get smart overnight. Two, for a large part of the consuming sector which may be in a position to convert, the necessary capital is not available and won't be for some time.

Another course of action would be to interrupt supplies at both the wholesale (pipeline) level and at the level of end-use. This can and is being done. There is clear authority within the Federal Power Commission to bar sales to retail natural gas distributors for some uses. This is a complicated situation, however,

for the FPC has authority to control a pipeline's wholesale deliveries to its distribution customers for either expansions or curtailments of service abandonments based upon the end-use to which the gas is put by the ultimate retail customer. But the FPC has no authority to control the actual sales at retail. This has been left to the state regulatory agency which has authority to control the allocation of gas to the ultimate customer but has no authority over the allocation of gas by the pipeline to the distributor.

The contract obligations between pipelines and distribution companies should, at least, be the starting point for determination of both curtailments and additions to supply.

This separation of authority is critical. If deliveries to distribution companies are based on end-use determinations rather than on pro-rata reductions in contract obligations, this could be disruptive to distribution companies which have relied upon curtailment of large interruptible customers for a substantial part of its overall strategy. Disregard of these contracts would also tend to deprive distribution companies of a fundamental basis for future system planning. Any attempt at the federal level to enforce end-use regulation would no doubt end in chaos as the FPC is not equipped to address the many and diverse circumstances at the end-use level. States must move to insure their role and to make sure that the federal process is in tune.

More than any other single limitation, politics has the most impact. One has only to look at what has resulted from the President's three-dollar tariff plan, his oil de-regulation plan and his proposals to de-regulate new natural gas supplies. And, let us not forget the Rockefeller $100 billion energy financing authority.

If I had to pinpoint a time when we might see the emergence of some form of rational energy policy at the federal level, I would say--not for at least two years. The next twelve months will be occupied with the great election process--with more of what we've had the past year. The following twelve months will be needed to re-establish where we are, to re-tune our thinking, and to, hopefully, get on with the development of long-term programs.

Given all of these things, what do we do at the state level to protect ourselves, to increase our options in the short-term and to insure we've not forclosed some options in the long-term?

I think, first of all, we recognize our limitations--paramount among which being the overall political problem. We, because of our closeness to the local problem, must create the right end-use program, through incentives and penalties, through demand management and pricing and through outright bans on some energy uses. But, importantly, we must determine, prior to implementation, the net long-term result of these many alternatives.

Banning outdoor gas lighting or gas for electric generation

will make supplies available for other uses. It will also cost some economic shifts for gas distributors, too, and we must plan for that. Such end-use controls are good in the short-term as they can make supplies available for other users who might otherwise be curtailed. Similar controls can be used as a long-term measure if they are developed as a way to insure that we are using our fuels in the most effácient manner possible based upon actual need for the fuel, not need based upon one user or one industry's economic equations.

We can use interruption programs in the short-term and probably can be quite successful in this if we are able to determine the difference between actual NEED and WANT, and if we can anticipate the economic dislocations which will result from having some users switch to higher-priced fuels. We've some time between now and when our major interruptions are scheduled to occur--sometime in late 1977 and early 1978--during which to develop our alternative courses of actions, identify exceptions to the rule and plan for such dislocations as might occur. We can also use price mechanisms through rate making and through federal de-regulation, too. But, in the long-term picture the lowest possible cost of energy is not necessarily our regulatory aim, it is the <u>real</u> cost of energy.

Another important thing we must do is remove ourselves from the debate over regulation and free enterprise. We've not been able, to date, to demonstrate that either system works equitably,

particularly in the short-term. This tends to be the classic federal debate at present, a debate which has borne no fruit and is not likely to do so in time to address our immediate problems. What we sometimes fail to recognize is that it is sometimes necessary for government to expand regulatory functions when the private sector fails to merge its own interests with the borad public interest. This vacuum, created by a competitive marketplace which, for the most part, is selfish, always will be filled by government action. If not, people don't get re-elected. We are, in my mind, going to have a variety of regulatory policies until such time as we can get past our immediate energy problems, which are here partly because we've not time to create supply or demand alternatives. Not everyone will like regulations; some will fight them.

The long-term goal is, to me, quite obvious. We must utilize our energy management skills to develop the economic equation or system which will allow various energy forms to compete with each other so that we have a logical economic process within which to shift from one fuel to another and within which to bring on line new energy sources as other, vanishing, sources become uneconomical or nonexistent.

The broad rules of the game are the same for both the short and long-term. Our decisions must be a combination of three things:

1. To put each fuel to its most efficient use and to make sure that activity is conducted efficiently.

2. To anticipate the various kinds of economic dislocations which could occur under any of the many combinations of end-use policy and minimize them so as to hopefully avoid the political debate which will only reduce our effectiveness and bar real solutions.

3. To recognize that there sometimes is a marked difference between what we commonly know as the private sector interest and the public interest sector, and that these interests change considerably when viewed over a couple of years and over a couple of decades.

In closing, it is not a question of whether we have regulation, or, in the immediate future whether we use pricing, bans on use, or interruption schedules. We are going to have some regulation because we've no other alternative which can hope to provide equitable programs. We are going to have to use all of the tools we can create in this effort. The creation and implementation of these tools will be a function of a cooperative effort between the public and private sector; an effort which is built on cooperation and accommodation, not on special interest lobbying and overt partisan politics. Our task is to do at the state level that which so far has been impossible at the federal level.

DEAN E. ABRAHAMSON: I must take issue with one of the things that Mr. Murphy said. My notes show that he referred to problems in gas and oil supplies and to changes in Canadian policy which caught us before we could develop alternative resource reserves. I cannot agree with him. We knew long before October 1973 that we were entering into a very unstable situation regarding imported oil. We also knew several years ago that Canada was in the process of considering major changes

in energy policy. Information was available which, had we chosen to act, could have helped avert the disruption that has been associated with recent changes in the petroleum situation.

That we have experienced disruption is not because we did not know that it was coming. We chose not to believe it, as we knew, or should have known.

I am reminded of something that Emile Zola wrote many years ago in Germinal -- a book which among other things gives some insights into the French coal industry of the 1800's. The quote is, "Any reasoning about the future is criminal, for it prevents pure destruction and holds up the march of the revolution." I don't want to suggest that this is among the reasons why we decided to ignore reality in dealing with energy reality, but it does suggest things that perhaps should not be ignored.

Phyllis Kahn is a member of the Minnesota State House of Representatives. Although she has not long been a legislator, she has built a very impressive record. I'd like to publicly give her my thanks for the legislative action which has resulted in this room being free of tobacco smoke today -- a measure which not only makes the inside environment a good deal more pleasant but also has the potential for permitting significant energy savings through reductions in the rate at which air must be exchanged in public buildings. In many of her other activities she has played an effective role in the Minnesota energy debate.

PHYLLIS KAHN: In accepting the invitation to join this panel we were all told that we could take as parochial an attitude as

possible. I speak to you today essentially as a political animal who is interested in re-election and since I'm the only one up here in that position I'll take this opportunity to play the role of a representative of the people who is, in a sense, an interpreter of government to the people. My district is fairly unique because it's a district centered around the University of Minnesota. The current mode of transportation there is either the bicycle or the foot as opposed to the Lincoln Continental. So, as you can see, my district is fairly easy to represent in terms of my being able to come out as strongly as possible on conservation measures and environmental measures.

I'd like to use my time here to talk briefly about the state of Minnesota's legislative history in terms of energy conservation. It's in the relm of energy conservation where we have been fairly successful, but we'd like to do much more. I'm afraid the prognoses for some of the pending legislation is fairly pessimistic.

One of the important things that the legislative process was responsible for was the creation of the Minnesota Energy Agency. This would not have been done save that in the winter of 1974 we first saw gas stations closed on Sunday. The legislature had energy bills introduced by the carload then, and they were being introduced by every legislator who was running a campaign. In this big flurry of activity, where every

legislator made sure his/her name appeared as an author of an energy bill, we did create the Minnesota Energy Agency. The Agency has not started everything we wanted it to do, nor has it done everything it could, but at least it has insured that there will be continual thought in state government on this issue. The creation of the Energy Agency also provided the state with a body capable of monitoring and providing input to public hearings on, for example, revising building code regulations with regard to energy conservation. It has also provided us a body to intervene in rate setting discussions with efforts to try moving the state to time-of-day pricing for electrical rates.

Another thing the State Legislature did, but which we never could have done without the federal initiative, was to pass the 55 mile per hour speed limit. That was one of the few things we did that was easy; I think it passed almost unanimously and extremely quickly by both houses. We had the proverbial gun pointed right at our heads since we stood to lose all our federal aid for roads if we didn't pass that bill. There was strong debate (we never do anything quietly), with many dissenting statements made but the bill did pass. What's frustrating for a state legislator to realize is how easy it is to get something done if someone else has basically told you to do it "or else" (and the "or else" in this case was the loss of highway funds). Another thing we did, during

our last legislative session, which indirectly relates to energy conservation, was to raise the rental tax credit so that it is very close to being equal and, in some cases, may be better than the tax break provided to home owners. With all due respect to what John Herman said about the problems of rental housing, there is probably no argument that low density rental housing can be much more energy effécient than detached, single-family houses, (even if you have thin walls, at least you have other people's heat coming through).

I have been carrying around this big orange book which is the final report of the Legislative Commission on Energy. In it are two bills now being considered by the state legislature. One provides certain restrictions on the use of energy in the state and also requires the disclosure of energy consumption data in the sale of certain goods. This bill calls for, among other things, a ban on decorative gas lights. It seems almost laughable, but the difficulty in passing this has become one source for my pessimism lately. All the bill says is that people would no longer be able to burn decorative gas lamps which are (1) a very ineffective source of illumination and (2) cannot be turned off and on easily and so burn continuously. The discussion in the house went something like this: even if they are very inefficient illuminators, these lamps are the only source of security for little old ladies who think this somewhat dim gas lamp in their front yard is capable of keeping off

the hoards of rapists and robbers and all the rest of the evils of the world. We could not pass that bill in '74. I hope we can pass it now, for it seems to me that if we can't pass such an insignificant item, we are really in trouble*.

There are other things in the bill. A good section on energy conservation in public schools puts the power where the purse is, and says that the Commissioner of Education can remove state school aide from a school district which does not implement energy controls on overheating, heat loss, illumination, etc. Also included was language calling for conservation measures in state-owned buildings. I've been personally supporting this for several years on the basis that the state must puts its house in order before we start drawing up guidelines for citizens having storm windows, insulation, turning off unnecessary lights, and so forth. In 1974 we made a start by turning off the flood lights that had been illuminating the State Capitol Building.

I'm not sure that the state will deal with the next couple of sections, and it would be very nice if the federal government would take the initiative. One of them concerns the disclosure of finite energy consumption, or in other words, requiring disclosure statements on appliances, reporting the amount and efficiency of that product's energy use. This measure is very similar to the public disclosure of automobile gas consumption in miles per

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* The bill, with this measure intact, has been passed out of the Environmental Preservation and Natural Resources Committee and is now on the floor of the House, banning, in addition, open flame pilot lights on new appliances sold in Minnesota after December 31,1977.

gallon. There are stirrings in Washington that Congress might pick this up so the states will not have to do it alone.

Another very important section of the bill concerns the state's Energy Research and Development Program. In Minnesota this concerns, for example, the use of peat, of agricultural waste, and even the use of wood, which is an energy generating resource much ignored in Minnesota and in need of some scrutiny.

A separate bill, going to the Tax Committee, will deal with tax rebates for energy innovative technology, for example, wind generators, solar energy and so forth. Another bill concerns a tax penalty for inefficient automobiles in the form of an excise tax on automobiles that use more gas per mile than set standards (yet to be determined).

Let me close by raising one final point about regulation. I mentioned earlier that one of the problems states have in acting in the area of energy conservation and regulation is that so often they must act alone, or not act at all. I hope that Bob Grant, in speaking at lunch, will share with us the problems of the far west and will also talk about the need for legislative cooperation. If the feds do not go to appliance labeling requiring disclosure, several states might do it in consort with much the same result. I view Congressional inaction in such matters very unfortunate because they are in a stronger situation than we when dealing with areas impinging on interstate commerce. Perhaps several states working together through an organization like the National Conference of State Legislators, can achieve meaningful

results in this area.

DEAN E. ABRAHAMSON: I've learned over the years that one can never win an argument with an editor or a legislator! The process is such that they have the last word.

Before we open the floor to questions, I'd like to take a couple of minutes to summarize. Rollie Comstock, rather nicely, pointed out that there may be supply problems coming before there is time for the construction of new equipment. This for no other reason than the shift to electricity by users of natural gas and oil, and also because of retirement of old equipment. He pointed out that we clearly must go to some kind of effective end-use regulation, although he didn't quite get to the point of indicating what measures he personally preferred. Clearly one can go a route characterized by increased regulation, one can go the route that depends more on traditional market mechanisms, and although we don't know what he personally suggests, he clearly recognizes this spectrum of alternatives.

Mr. Herman, using an example, clearly pointed out that we must deal not only with energy supply, per se, and traditional energy end-use considerations, but that a rational response, and a response that has any hope of success in what's emerging as the energy problem, requires that we take a hard look at urban planning, the way we deal with housing decisions, and decision making in general. He also pointed out that we must incorporate energy considerations which are based on reality and not on the euphoric projections of promoters. Rather, we have to really get into

our whole decision making mechanism and see what constraints it is now putting on energy use. My interpretation of what he said is that we already have a great deal of energy end-use regulation, much of which was enacted for other purposes, and much of which is of the wrong kind for the present situation.

Mr. Murphy painted a gloomy, and I think realistic picture about the political factors acting to prevent us from responding effectively. He also said that the states have to take the lead since the federal government is clearly not, for various reasons, responding. I'm not convinced that the states are any less constrained by the same considerations that, he pointed out, are acting on the federal level. Hence, I'm not optimistic that the states are in a much better position than the Congress, although I'd be pleased to be convinced otherwise.

Finally, Representative Kahn gave a concise summary of some of the actions that the legislature has taken recently or which are pending before the legislature. My impression is that Minnesota is clearly one of the leaders among the states. Minnesota has always been a leader, lets face it, and of course its because of our Scandanavian heritage .... and we may as well accept it, if immodestly.

NATIONAL ENERGY

POLICY AND THE

ROCKY MOUNTAIN WEST

Philip R. (Bob) Grant, Jr.
Representative
New Mexico House of Representatives

NATIONAL ENERGY POLICY AND THE ROCKY MOUNTAIN WEST

Perhaps one of the more surprising aspects regarding a national energy policy is that two years after the most dramatic economic crisis in our nation's history, brought about by depletion of domestic sources of oil and gas and reliance on foreign supplies, our Congress has been unable to face reality and develop a policy of any kind to resolve our fuel problems.

That any rational policy for energy self-sufficiency must take into consideration the needs and interests of the states of the Rocky Mountain West is self-evident. Besides oil and gas resources available for short-term contributions to energy demands, this ten state region, with less than ten percent of the country's population, has virtually all of the nation's resources for long-term solutions to energy requirements. Forty percent of our country's known coal reserves are there, and almost all the low-sulphur content coal. Eighty-five percent of all the discovered uranium deposits are in the three states of New Mexico, Wyoming, and Utah. Colorado, Utah, and Wyoming have vast beds of organic shale containing hundreds of billions of barrels of crude oil. Geothermal potential in the West's extensive areas of volcanism offer viable solutions to increasing electrical generating capacity. Portions of the states of New Mexico and Arizona receive between 75 and 95

percent of all available sunlight, offering unlimited opportunity for the development of an ultimate solution to electrical requirements from solar radiation.

We in the West are not unused to large scale mining and exploitation of our mineral resources, but we are not prepared to cope alone with the massive new requirements national energy self-sufficiency will bring. We look upon these new developments as an economic opportunity and challenge. But we are also going to insist on protection of our natural beauty and physical environment, and even-handed treatment from those who will use those materials we will contribute for their own economic well-being.

Let me see if I can briefly summarize for you how we got in the energy bind we're in, the present effect of the lack of an energy policy on consuming and producing states, and some of the things that must be done to help the West help you.

Until the fall of 1973, two years ago this month, few Americans were aware of the existence of a group of foreign nations calling themselves the Organization of Petroleum Exporting Countries. The enormous and disproportionate influence of these small but resource rich countries on our nation's economic well-being was dramatically focused by the embargo placed on the sale and delivery of their crude oil to the United States. The resulting shortages and approximate quintupling of prices for their oil early in 1974 culminated in the well-

documented Energy Crisis and a national mandate for energy self-sufficiency.

From an easy assumption of an everlasting abundance of petroleum, the United States learned that for the first time in modern history it was dependent upon others for its economic survival. When the OPEC cartel opened the valves again, we found ourselves paying $26 billion a year to them for a product we were used to paying no more than $3 billion for. Our total capital requirements merely for the oil we consume has jumped from about $14 billion in 1972 to an estimated $47 billion in 1975.

Our country's domestic oil reserves - so extensive that just 25 years ago the U.S. was a net exporter of crude oil - have declined to 34.5 billion barrels left in the ground at the end of 1974. This represents less than six percent of established world reserves, and would be about a six year supply if no other source were available or no new discoveries were made. Similar depressing conditions exist with respect to natural gas supplies. Twenty-five years ago gas was considered a nuisance associated with oil production that had to be flared into the atmosphere in order to be disposed of. Now, because of a lack of foresight on the part of the government with regard to pricing policies, demand, and supply, the nation is faced with a critical shortfall of this precious commodity this winter.

Obviously, the recent era of cheap and plentiful fuels with which the economy of the United States enjoyed phenomenal growth and prosperity, is over. Alternate sources of energy and fuel to take the place of oil and gas must be developed. Given sufficient money, time, skill, a great deal of luck, and a sense of responsibility yet to be demonstrated by Congress, this nation can and will be energy independent again.

The Rocky Mountain West's posture within the framework of national energy self-sufficiency offers an unparalleled opportunity for economic progress. Capitalizing on the fortuitous and generous occurrences of natural resources within their boundaries, these states have the mechanism and base to benefit their citizens and institutions with permanent new jobs and income.

Wise and judicious application of these resources to produce orderly, stable, and beneficial development is imperative to prevent the potential misfortune of a "boom and bust" cycle - so common in mineral resource development in the past - and degradation of the scenic beauty and pristine environment. Political implications to treat these resources as the West's capital, to be wisely invested, bargained with, and bartered for must be considered if these states are to reap the benefits of end-use of its production for processing and manufacturing, and earn a fair, equitable, and permanent return for the investment of their finite resource capital.

However, before we start counting all these blessings, let's examine for a moment what has come out of Washington in the past two years regarding policy on oil and gas alone. Certainly, we must hope our country can do far better than this.

With the stated rationale of expanding domestic production and exploration for new reserves, and in the face of absolute maximum domestic oil production of 8.3 million barrels a day now compared with peak production of 9.5 million barrels in 1970, the Government took the following steps. First, as the price of crude oil on the world market approximately quintupled in 1973 and 1974, the U.S. Government tried to restrain politically unpopular domestic price increases by establishing a "two-tier" price control structure. Regulations limit the price received by producers of "old" oil - that production established prior to 1973, which constitutes about 65% of domestic production - to $5.25 a barrel. This means those companies smart enough to be willing to risk their capital to find higher priced domestic reserves while others were going after cheaper foreign crude, are being penalized since they can only receive 40 percent of market value for their property. And, those states like New Mexico that have the production are losing 60 percent of the tax revenues they are entitled to for each barrel of "old" oil produced.

"New" oil which can be sold at free market prices of over $12 a barrel was arbitrarily defined as oil discovered after 1972, stripper well production of 10 barrels a day or less, and "released" crude. The latter two categories have produced some rather unique anomalies. First, you make more money by holding the production on your 15 barrels a day wells to 10 barrels. Second, you can create $19 a barrel oil by in-fill drilling in an old field, because for each barrel of new oil at $12 you can produce, you "release" a barrel of old oil from the $5.25 ceiling which can also be sold for $12. Is it any wonder that available rigs are drilling in old oil fields instead of trying to find new ones?

The two-tier price structure took care of producers. But the originators of this system had hardly finished congratulating themselves when it was discovered that those refining companies with lots of their own domestic old oil crude to process, were understandably reluctant to sell at $5.25 a barrel to their not so fortunate competitors. Most crude short refineries are on the populous east coast and, though benefitting enormously by cheap pre-embargo foreign crude to the detriment of our domestic producers, now must buy high priced foreign oil to supply their distributors. So the geniuses in Washington came up with an allocations program to disrupt the nation's distribution system by forcing mid and southwest producers to ship eastern refiners a portion of their $5.25 crude.

This didn't create enough disincentive in the oil industry, so the bureaucrats tried another program called "entitlements." Entitlements now force the refiner/producer with above average old oil resources which he came by through his past concentration and investment in high priced U.S. exploration and development, to pay his less efficient competitor who is using primarily foreign crude, over $8.00 a barrel for the right to refine his own oil! This effect of averaging the price of crude oil to all refiners means that states like my state of New Mexico that produce primarily price controlled old oil not only receive absolutely no tax benefit on the entitlement-barrel differential, but also that our citizens are subsidizing those in other states to the tune of 12 to 14 cents for every gallon of gasoline we must purchase at the pump. It also took $1.2 billion away from the industry that could have drilled 10,000 more wells this year. This and the $1.7 billion Congress took away with the depletion allowance is a big reason production has not been expanded.

The same ambiguity occurs with respect to natural gas. Gas produced and consumed within the state that produces it is designated intrastate gas and can be sold for whatever price the producer can obtain. In major gas producing states like Louisiana, Texas, and New Mexico, intrastate gas is selling for more than $2 per thousand cubic feet, a fair price which is almost equivalent on a Btu heat/energy basis with that of uncontrolled oil. Gas sold outside the state that produces it is

designated interstate gas and the Federal Power Commission has the authority to set the price it can be sold for. Current regulations permit new sales of interstate gas to be made for no more than 52 cents per thousand cubic feet.

In New Mexico, the competition with cheap foreign crude 10 to 15 years ago and the artificially low prices mandated for interstate gas generated a precipitous drop in new exploration and subsequent decline in producible reserves. Our oil reserves, which stood at 1.1 billion barrels in 1961 are now at 600 million barrels. Gas reserves which were 24 trillion cubic feet in 1956 are now less than 12 trillion cubic feet. It it any wonder to you that we wish to retain for our own use what we have left or at least receive a fair return for it? New Mexico ranks fourth in the nation in gas production and sixth in oil production. These two sources are the single largest in our state in wealth and tax revenue. Yet, our per capita income is 49th in the U.S. We export 78 percent of our crude oil to be processed and used by other states and consume only 11 percent of our natural gas. At artificially low prices we are subsidizing the rest of the nation at the expense of depleting those finite resources we are fortunate to have now, but not, perhaps, in the future. We receive virtually nothing in terms of value added taxes and jobs that would be available if these materials were converted to finished products within our boundaries. If oil

and gas prices were freed to seek their actual value in the marketplace it would stimulate the exploration necessary to replace reserves extracted, permit us to send more of it to you, expand our industrial base, and double our tax revenues.

Obviously, we and the other Rocky Mountain states with energy wealth are demanding a voice in federal planning, and requesting a sympathetic ear from those states who will benefit from our resources. If there is a prime example of a "rip-off" of our state's natural resources, I've just described it, and we don't want this to happen with the rest of our resource base. And I emphasize that this is not an effect created by the industry. It is simply a result of passive indifference by the state in past years, the net effect of long and short term meddling and interference by the federal government, and an irrational Congress which has yet to come up with anything remotely resembling a sensible and comprehensive energy policy. Continuing price controls on oil and gas will do nothing to increase the supply of these precious products or reduce our total dependence upon foreign sources for them - a dependence that only amounted to 5 to 10 percent of our oil consumption in 1973 during the last embargo, but amounts to almost 40 percent today. The longer we go without an energy policy that encourages exploration and production, the closer this nation comes to complete economic disaster should these foreign supplies be cut off again.

Not all the blame can be laid on the doorstep of those in Washington. Energy short states themselves must face up to alternatives of inappropriate actions. Next June, for instance, California voters must decide on a measure placed on their ballot by referendum that would shut down all the state's nuclear generating plants and prohibit the construction of any new ones. This is a state whose electrical energy demand is expected to double in the next ten years, and whose laws regarding air pollution already ban construction of coal fired electrical generating plants. With virtually every major electrical utility moving into coal fired and nuclear generating plants, where does California think they're going to place these? If California and other states are looking at New Mexico with its coal and uranium, small population, and wide open spaces to generate their electricity or create their artificial gas from coal at the expense of potentially intolerable effects on our environment and impossible demands on our limited water resources, they should begin a dialogue now as to what the trade offs are going to be. If they would agree, for example, to "unlock" the Colorado River Basin Water Compact to permit New Mexico to retain water that is now flowing to California, we might be interested. If they and other states, for instance, would assist us in locating the National Solar Energy Research Institute in our state as a base for solar related industry, we might talk in terms of short term

disadvantages for long term gain. In other words, the Rocky Mountain States are going to be looking much closer at benefits besides money for profit with regard to production of finite, irreplaceable resources and potential environmental degradation. Bartering is going to be a viable option.

Further, retention of a "Colonial" status attitude by consuming states and industry pertaining to extraction and exploitation, so prevalent in the past, will no longer be tolerated by an alert constituency in producing states. Prior to the Energy Crisis and an awareness of the value of energy resources to those states that have them, industry generally exploited the region's minerals for the essential benefit of those outside the region. Profits generated from minerals produced "at cost" in the state, and processed outside the state are mainly realized in the marketing of the end product. A larger share of profit must remain at the producing end, especially to meet local and state government needs brought about by the producing activity. Otherwise, these entities will obtain their share in additional taxes on production.

There are a number of other questions which must be addressed in any consideration of an effective energy plan.

The availability of water to produce products is critical to any evaluation of the Rocky Mountain West's ability to utilize its energy resources. Under existing conditions it would be

impossible to remove oil from shale in Colorado and Utah without importing water from elsewhere. Nuclear and coal fired electrical generating complexes require water supplies that presently do not exist or are not already committed to other uses. Coal gasification plants, revegetation requirements for coal strip mining, and supplies for domestic consumption in "new" communities create demands that will be difficult to meet without outside assistance.

The "front money" required to develop and furnish services to new or expanded communities is a burden that most Rocky Mountain States are unprepared or unable to meet. Without federal assistance and commitments from industry to include these funds as a part of their projected costs, major problems will occur.

The capital requirements for energy development are enormous, whether we talk about mundane things like the $300 million it would take to drill 2,000 more gas wells in the San Juan Basin, or the more exotic billion dollar uranium enrichment plants and coal gasification complexes that are being discussed in New Mexico. In comparison, the assets of the largest bank in New Mexico amount to slightly more than half a billion dollars. Of major importance in financing these projects is deficit spending by the federal government which removes development dollars from the private sector and drives interest rates too high for industry to compete.

Environmental aspects have been mentioned previously and will have a great deal of influence on what is done where and when, and at what cost.

Far more research and development into solutions of the energy problem will be necessary. Despite the massive infusion of federal dollars into this area, amounting to $22 billion over the next ten years to be spent by the Energy Research and Development Administration, continual examination of priorities and funding for immediate and long term results, and expansion of the mandate to include social and environmental problems is imperative. It is not inappropriate for the nation to consider a "crash" program for development of alternate energy sources as a research commitment. The fossil fuels in the Rockies are finite and energy conversion facilities will not last forever. Any national energy policy should take this into consideration and provide that much of the energy R&D be accomplished in our states.

Finally, it is doubtful that the states of the Rocky Mountain West will ever again be complacent about the utilization of their resources. State governments will and should take a vigorous lead in setting the terms of national energy policy, and will not settle for second best. Already the ten states of the Rockies have formed an organization called the Western Governor's Regional Energy Policy Office, under the Chairmanship of Governor Apodaca of New Mexico, and directed

by former Governor Guy of North Dakota. Recognizing that the political impact in Washington of these relatively unpopulated states is negligible singularly, the intent is to speak with a common voice through their collective congressional delegations on federal energy initiatives. Similarly, the state legislatures of Texas, Oklahoma, Louisiana, Arkansas, and New Mexico have formed an organization called the Southwest Regional Energy Council to speak to Congress on energy matters of mutual interest, particularly with regard to oil and gas regulations. Between them, these 15 states produce or contain more than 75 percent of the country's total energy resources. Collectively they will be a force to contend with in the development and implementation of a national energy policy.

Thank you, and if this sounded parochial, it was intended to.

TASKS FOR THE PARTICIPANTS

Kennard C. Kaplan
Vice President of Manufacturing
Owatonna Tool Company
Chairman
Energy Task Force of the
Minnesota Association of Commerce and Industry

TASKS FOR THE PARTICIPANTS

Good Afternoon!

I would like to address you as:

Honorable participants and policy-makers of Minnesota's future..,

I address you as such because members of this group will be largely influential in shaping the future of this great State of Minnesota. I am confident that we have exceptionally well qualified people to contribute toward our goals. Our objectives are simple. First, to find practical solutions to our short-range energy problems immediately, and second, to develop a plan for energy needs of Minnesotans in the long run.

My background is shallow in the energy field, but my concerns are as real and as valid as anyone in this room or indeed in this country. I stand before you today representing the Minnesota Association of Commerce and Industry. This Association as nearly as possible represents the business viewpoint and acts as the voice of business in the State of Minnesota. As Chairman of the MACI Energy Task Force I have been diligently trying to educate myself and my committee in the field of energy. Our MACI goals and objectives are as follows:

Objectives:

1. To identify the critical state of energy resources and delivery systems affecting Minnesota business and industry, and its citizens.

2. To identify sources of energy information available in Minnesota.

3. To identify feasible short-term and long-term solutions to Minnesota's impending energy shortage.

4. To communicate the magnitude of the problem and possible solutions to the public, showing pros and cons and the impact of each inventoried energy source.

5. To mobilize support for appropriate action by state and federal administrative and legislative agencies.

SUGGESTED ACTIVITIES ARE:

1. To compile information relative to the state of energy resources and delivery systems.

2. To compile sources of energy information.

3. To evaluate objectively the impact of environmental issues and regulations on the energy crisis.

4. To encourage development of energy self-sufficiency for the nation including nuclear power generating capacity, increased coal production and other potential sources of energy.

5. To examine tax policies which would attract capital and manpower into enterprises developing, producing and distributing energy supplies.

6. To aggressively promote a realistic program of voluntary energy conservation with emphasis on elimination of waste.

7. To promote joint efforts by industry and government to finance large expenditures required for research and development of existing and new energy technologies.

8. To promote problem solving programs.

9. To develop an educational awareness program depicting the serious energy crisis facing our state and nation.

After numerous meetings to set goals and to hear from the natural gas people, petroleum and electrical industries, we are beginning to get a feel for the true nature of the problem.

My family is also getting into the act. I come away from many meetings and study sessions and lean on my teenage drivers to conserve gasoline. I lean on the rest of the family with regard to lights, etc. All of a sudden the entire picture was brought into focus by my 8-year-old, Jeannie, who, while we were driving down the street one day, turned to me and asked, "Daddy, what am I going to do for gasoline when I grow up?" Ladies and gentlemen, that is a sobering question. It is simple yet direct, and can surely be extrapolated for all other forms of energy, and be equally well asked.

Part of my purpose today was to have convinced you of our energy problems. I would like to think that I do not have to do that with this group. If we have doubters among you let me say that you may argue the timetable on depletion of our fossil fuels, but you cannot deny that the end is in sight. I have often heard it said that the shortage is one big ripoff of the consumer. Unfortunately this misconception has prevailed in many quarters, and in some cases may even have been true. However, I can guarantee you that this is not a responsible position in today's world, and it is not going to answer my Jeannie's question! If you don't believe it, #1 you haven't done your homework, or #2 you've done it

with your eyes closed and a deaf ear. I think the facts and research in the energy field have been well done, and adequately outline the problem.

As a businessman I like to think of myself as positive, logical and optimistic. However, I must confide in you that I am pessimistic about the short run. I do not see positive logical answers to our energy problems in the short run... and we do need them. I do not see people changing their energy habits at this time... and we must. I do not see corporations changing their growth attitudes and energy habits... and I think they must. Growth in sales dollars and earnings have been a way of life for years (my entire adult life). But the complexion of corporate growth is going to change. I have started an energy program in my company with a realistic goal of reducing energy by 18 percent in 1976, and 30 percent in 1977. I am convinced of our energy shortage! We are doing this voluntarily which I believe to be the best way, but we need direction for the future. When I am forced to shut down natural gas to my forge furnaces, what fuel do I use? Am I well advised to make the capital outlay to convert these furnaces to oil? Electricity is not an acceptable alternative in this case.

The Minnesota Energy Agency assumes that: "Declining oil imports from Canada will be replaced, either directly or as part of a swap arrangement by new domestic oil and/or imports from non-Canadian sources." How much capital would you use as a

businessman be willing to risk on that assumption? I submit to you that the business community must have absolute answers to some of these questions.

We are attempting to look at end-use regulation today and I would like to raise the flag of caution. I think it has been well demonstrated that improperly conceived regulations can be extremely devastating. I have seen government priority lists that give top priority to home heating, food, etc. That sounds good, but can it be sold to the factory worker who loses his job because it is "low priority"? Whose job bears the greatest priority? The scholar, doctor, lawyer, politicians or service oriented businessman is probably not affected by priority. A factory worker may have a warm home and grocery store loaded with food, but without a paycheck he will surely have trouble paying for either. Without all of our present jobs, and indeed many new jobs, our ever enlarging work force will surely face a future of hard times. How do we decide whose product benefits society and to what degree? Again, I caution the use of regulations. It must be well conceived, not based on emotionalism or special interest, but in fact must border on "divine wisdom"! The fact that we are meeting to consider "end-use regulations" seems to imply an accepted position. Is it a foregone conclusion?...I leave you with the question.

This country was built by "doers," positive people, with

incentive and free enterprise..let's not forget that. We have got to get off our duff and zero in on positive ways of getting out of this mess. This conference demonstrates that kind of approach by that kind of people. I submit to you that the best effort we can put forth will be none too good.

In closing I should like to encourage everyone to work diligently toward positive, practical solutions or we shall surely be unable to face the generations of tomorrow who simply ask..."Daddy, what will I use for gasoline when I get big?"

INFORMAL SUMMARIES

OF WORKSHOP DISCUSSIONS

Philip W. Getts, Moderator
Deputy Director
Minnesota Energy Agency

Ron Visness
Senior Systems Analyst
Minnesota Energy Agency

Robert W. Carlson
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Lee G. McKinnon
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Phyllis Kahn
Representative
Minnesota House of Representatives

Dave Kopecky
Special Assistant to the
General Manager
United Power Company

WORKSHOP TASKS

Is end-use regulation necessary in the face of decreasing energy supplies and increasing consumer demands, in the light of the desirability of better conservation of resources, and when assessing the capacity of the free market system to allocate energy resources?

What are the aims of end-use regulation in the achievement of policy goals, in the reduction of overall energy use and in its ability to respond to unique environmental/economic conditions?

What mechanisms are most appropriate for regulation? Options might include, a) direct regulation of consumers and/or suppliers by requiring certification of energy needs, approbation of energy contracts and/or the licensing of suppliers to sell, or, b) indirect regulatory mechanisms such as tax incentives, penalties, or price controls. What are the relative costs and benefits of these various regulatory mechanisms?

To what extent can Minnesota implement end-use regulation without regard to national or regional constraints? What would be the economic impact were Minnesota to impose requirements or standards more stringent than those of the federal government or other states?

Who would best assume the responsibilities of regulation? The state government and/or the federal government? The Public Service Commission and/or the Energy Office, or a new agency?

Should regulation occur under emergency conditions only or as a continuous program?

How does regulation fit into regional planning, in particular with interstate cooperation in light of similar and/or shared energy concerns and conditions?

What consideration should be given to regional planning in light of policy issues such as maximizing employment and the development of standards for the implementation and assessment of regulation, as well as standards concerning the legal requirements and limitations of regulation?

What other considerations need to be taken into account when discussing the feasibility of end-use regulation?

INFORMAL SUMMARIES OF WORKSHOP DISCUSSIONS

PHILIP W. GETTS: I'd like to call on each of the moderators to summarize the discussions in their workshops according to their perceptions of the essential issues addressed. If they have any conclusions and recommendations, I hope they will share those with us as well.

RON VISNESS: This will be a little difficult to summarize for as I was sitting in the workshop, I felt as if we were 15 people trying to describe an elephant -- you will understand the problems we faced! I'll touch upon several points, although not in any particular order. One point we brought up, which I thought was really quite important, was that end-use regulation is now being discussed in several forms through cases being brought before the Public Service Commission in other regions; these kinds of discussions and decisions are likely to continue to occur as more groups submit cases for deliberation.

There was a viewpoint expressed, particularly by one gentleman, which I think is shared by quite a few people in this seminar. That was that end-use regulation -- i.e., the intervention of some third party to allocate products -- would, in fact, cause more problems than it would solve. Part of the reasoning used in supporting this claim is that those who would regulate have a lack of knowledge of the industries being regulated -- what their priorities are, and so on. To conclude, there

was a general feeling shared by all parties, that the lack of information was a major problem.

BOB CARLSON: Recognizing that the nine questions posed to our group were not answerable in specifics, our group was very vocal and expressed a wide range of opinions relating to end-use conservation of energy. Conclusions made by our group were generally keyed to broad policy rather than specifics.

It was encouraging that our group recognized energy conservation as a public obligation even if we are not direct beneficiaries and that we should not be reluctant to conserve energy in Minnesota if that energy supply ultimately becomes available in another area of the country.

It was agreed that conservation of energy by new code, new laws, or by new regulation should be implemented with incentives rather than penalty. So far as possible, we should attempt to develop end-use regulations which least disrupt the economy and present life styles.

In discussing indirect regulatory mechanisms such as tax incentives and penalties, our group expressed concern over an excessive amount of bureaucracy that might be self-defeating. "Thou shall not" policies are less desirable than incentives that encourage people "to do."

The need for end-use regulation resulted in expressed concerns as to determination of what is "frivolous or unnecessary use," so as not to do damage to the economy or economic growth. Our group expressed concern that end-use policies be broad enough so that energy use that is important to the economy or business, or jobs be not arbitrarily determined without some input from those affected.

Our group expressed mixed attitudes regarding a Madison Avenue type public relations campaign that would result in more rhetoric than results. Most numbers of our group felt that the major task is to convince 60% of the public and 60% of the law makers that the entire energy problem is not a "big rip-off." It was agreed that until the leaders in government and industry stop making light of the problem, the general public will not accept restrictive use regulations. End-use regulation, be it by law, rule, or incentive, should be "sold" to the public as necessary to the public welfare. Our group agreed that there should be continuous public education programs and that secondary benefits such as benefits to the environment should also be stressed. Further research was recommended to be included as part of any educational effort on end-use.

Our group leaned strongly toward implementation of any end-use regulation at the state and local level as far as possible, recognizing that there are certain broad policy matters that must come from the federal level. It was generally agreed that economic regulators on the state level have the greatest "clout" through

rate design and economic incentives to utilities and the public. There was considerable concern that a federal program will tend to compound the problem.

Our group saw regional planning as a helpful means of expanded involvement and to off-set concerns that decisions might be made in Washington and St. Paul without understanding of local conditions or problems of the rural areas.

Additionally, it was agreed that Minnesota should not be reluctant to adopt end-use standards which are more stringent than those of the federal government or nearby states.

GORDON VOSS: Our group discussed four points presented in the study questions we were given. The question of whether or not the energy situation we face in the future actually will make end-use regulation a necessity was, unfortunately, the fourth question on our list, but we quickly put it on top. After wrestling with this issue for some time we found that we have, I think, a basic agreement in that the energy shortage picture we are facing is going to force us into regulation of some kind. We had quite a bit of disagreement originally which, I think, was based on our various definitions of the word "regulation." After working on that for a while, we realized that the issue we were really worried about was the nature of appropriate mechanisms for regulation -- another study question we were given. Here we had the most agreement concerning the tool of mandatory curtailment of users (that "thou shall not" that Bob just brought up).

We had less agreement concerning the price regulation mechanism, however.

We drifted next to the role that the state government, Minnesota in particular, might have relative to the federal regulation role. We came to our conclusions mainly by using, as a model, the natural gas situation. We talked about the discussions that are now going on in Washington and the different regulations that are apparently being put on various energy uses. We agreed that Minnesota, if it desires to use curtailment policies, is going to be under fairly strict guidelines from the federal government. We recognize that in this matter the state is going to be severely limited in the decisions it can make.

Finally, we thought for a while about the aims of end-use regulations, i.e., what we are really trying to do. I think we had very little trouble arriving at a consensus on this. The consensus was that we were aiming to minimize impact, however, I thought there was a great deal of pessimism about whether or not we would in fact be able to accomplish much in the way of minimizing impact given the tools available to us. This lead us to believe that we might be talking about the wrong issue again so we drifted away for a little while to the question of supply and the obvious shortage situations that Minnesota is facing, particularly with respect to the crude oil problem. We talked

about this in some length. I think you recognize that we could have had a whole conference on that problem itself but that problem is sort of a separate one. Certainly the point Bob raised earlier with respect to regulating and conserving energies that might not even exist for us to regulate or conserve is apropos here.

It is interesting that our group started off with a lively discussion in which we saw little consensus in our positions, but by the time we ended we found that we had much in common in terms of agreeing on the problems we face, on what their outcomes will probably be, and also on what we thought were desirable outcomes.

LEE MCKINNON: We had a very active group in which all participated. Our workshop group began by addressing the questions "Can Minnesota afford to implement end-use regulation without regard to national or regional constraints?" and "Is end-use regulation necessary?" I am not going to summarize exactly what was said for the simple reason that we have several moderators in our group. Jim Denn will relate the course of our discussion concerning the necessity of end-use regulation and the regional and national constraints on this.

JIM DENN: I hope that I can present an adequate summary of the two questions as we discussed them. I must admit that my notes spill over into some other questions so there may be some overlap.

To answer the two questions simply, there was a consensus in our group that end-use regulation of a form is necessary and that its aim should be to minimize the impact of the energy shortage. We covered a lot of terrain in getting to that consensus and I think it important to comment briefly on that process. First was our recognition of the different kinds of shortage; economic shortages and real shortages. Economic, in the sense that there is a very real shortage for some people (and will be for others at some point) simply because they can't afford to pay the market price. However, until there is a lack of supply, the degree of willingness or ability to pay a particular price will be seen as constituting no real shortage. We all agreed that the prospect of a real energy supply shortage is definitely on the horizon.

We also noted that Minnesota has some unique characteristics that should be recognized in the discussion and development of any regulatory scheme. An example would be the summer economy that Minnesota has developed in its growing resort industry. Also, and to some extent uniquely, the Minnesota legislature has taken the initiative in addressing the problems of energy shortage and allocation within our state.

We agreed that there is a need to increase education on the severity of the energy problem, a need to expand product information services to help the general public become sophisticated in the use of product selection criteria, and a need to develop

short-term strategies as well as long-range planning to meet the energy crisis. It was suggested by one member of our workshop that a good short-term strategy might be price regulations administered by the Public Service Commission. We must recognize that end-use regulation at a state level has its own limitations and we must be sensitive to the fact that the implementation of state regulations must be compatible, to the greatest possible extent with federal regulations. These will probably reflect an appropriate blend of end-use regulation and price control mechanisms to achieve the desired end. I think there was again a group consensus that indirect regulation was desirable in stimulating greater and more speedy response by industry (the innovators in energy use products).

LEE MCKINNON: We directed our attention next to the question, "What mechanism is the most appropriate for the regulations, direct or indirect?" Representative Kahn will enlighten you on our groups' thoughts on that question.

PHYLLIS KAHN: I think we concur with Mr. Voss's group in that we agree that people like freedom of choice. It is very important to give them at least the illusion of freedom of choice. One of the ways to do this is by tax incentives and penalties as well as a variety of other routes. One of the ways that government can act in this way is to magnify the kind of choices that the market is having us make already. For example, if the price of gas

continues to go up and people respond by moving towards more efficient cars (which they are already doing), the state is in the position to hasten that movement by throwing a heavy excise tax on inefficient cars. This, in a sense, is more palatable, and maintains the illusion of choice by having people feel that they can do what they want if they are willing to pay a price for it.

LEE MCKINNON: The last two questions addressed are, "To what extent can Minnesota implement end-use regulation without taking into account national and regional perspectives?" and, "Who or what department can best assume the responsibilities of regulation?" Dave Kopecky will give the group's thoughts on these two questions.

DAVE KOPECKY: Regarding the extent to which Minnesota can implement end-use regulations regardless of federal and regional interests - there is a limit, simply because industry is ever aware of the cost of doing business in other areas and regions. If we get too far out of line in relation to other states, business will have a tendency to migrate. We have to be careful in developing regulation mechanisms so that we don't let this happen.

As far as the agency which might best assume the responsibilities of regulation, I think we felt that in the short-term the Public Service Commission, through price controls, would be able

to do a fair amount of good. Over the long-range we felt that the Minnesota Energy Agency could best help guide regulation efforts in that they are the agency that now is gathering data on all sources of energy, including gas, oil and electricity. They are and will be in the best position to analyze this information, to provide guidance in determining the long-range appropriate uses of different energy sources, and to suggest what can be done in specific areas of Minnesota to displace the use of one type of energy with another.

LEE MCKINNON: Mr. Chairman, in conclusion we felt that regulation should be used to speed things up, and that at the same time we should emphasize the importance of long-term planning.

PHILIP W. GETTS: Thank you very much. I might close by adding one or two personnal observations..I have been thinking about the content of this conference ever since Bill Blanpied and I first talked on the telephone sometime in late July or early August. Our conversations about this seminar usually revolved around a list of questions, many of which found their way into the task list we worked from this afternoon. I think that, as Bob Carlson pointed out, a number of those questions probably don't have answers, but the thing I found most intriguing about the comments of our moderators, is that, by and large, we were able to come up with answers. I don't know that any of you would advertise them as being perfect or all encompassing, but you seem to have come up with some answers that make sense both in

terms of short-range goals and long-range goals which seem to be workable in a rough way; details would obviously have to be worked out. But overall, I am intrigued that the difficult questions Bill Blanpied and I discussed last summer have indeed produced some answers that I hadn't thought were possible. Thank you again for all your work.

We will conclude by calling on Dr. Charles Cicchetti, Director of the Wisconsin Office of Emergency Energy Assistance to present his thoughts on what has transpired today and what might transpire in the future.

SUMMARY OF DAY'S ACTIVITIES

Charles J. Cicchetti
Director
Wisconsin Office of Emergency
Energy Assistance

SUMMARY OF DAY'S ACTIVITIES

Parochialism in discussing energy illuminates that complex subject about as much as partisanship illuminates complex political issues. In my opinion, both are an invitation to be overly simplistic. When complex issues are involved, that probably also means wrong.

A summarizer is supposed to be neutral, but that is not my nature and these topics are too far-reaching for one to live by the book. Let me demonstrate what I mean by saying that, while I agree with much of what Bob Grant, a legislator from an oil-producing state, has said when it comes to current problems, I think he offered us a whole lot of bunk when he offered his opinions with respect to the appropriate policy response.

He blamed the Congress for inaction; I won't try to defend them. But the President is the one who speaks "independence" and has it in his power to end crude allocations and entitlements. Both programs give high profits to importers and low profits to old domestic oil producers. A succession of "Simple Simons" appointed by the President have not accepted blame as they should for our growing propensity to import.

Mr. Grant conveniently ignores history and the three decades where the U.S. paid 2 times the world price and "Drained America First!" We subsidized producing states then and sold public lands on which they collect their taxes today. His solution for these problems is for the President to defeat the Arab-led worldwide

oil cartel by surrendering to our own "blue-eyed Arabs" in the western states. We are to accept a remedy of higher prices worse than the illness in both the short and long run. A healthy patient can't absorb that type of cure. And, our sick inflation and recession-ridden economy can certainly not do so.

My statements are simplistic, inflammatory and partisan. I haven't illuminated, I have vented my frustration. Let me begin again without such a parochial and partisan position, but I ask you to keep my thoughts, as well as Bob Grant's, in mind. Both are necessary to understand the problems surrounding the topic of the day, end-use controls.

Not too long ago we faced a situation in which environmental and economic improvements were thought to be in conflict. Both sides, and there were sides, claimed ignoring their warnings would result in an ultimate defeat for the other. Neither would concede this and both differed over short-term and long-term policy, but the conflict never seemed to appreciate this fact.

Enter a third E. Call it energy. Now when we talk about and consider environmental, economic and energy issues, the surprising thing is that most people can now see how all three are inextricably, and in a broad setting, inalterably tied together. We accept the fact that:

* What is good energy conservation is good economics and good environment.

* We are exposed to commentaries that point out it is foolishness to continue our historical trends and we agree.

* We criticize the Congress and the President for their delays and we grow impatient.

* Energy conservation must become a coequal, but not dominant, national goal. Recent history makes this all too apparent.

But hold on a moment. Multiple objectives require complex solutions. The President wants to end controls of allocation of oil because he sees the mess he is creating and the rising imports. The Congress wants price controls to keep economic recession from being the uninviting tool of energy conservation. Both goals are good. The challenge is to find solutions that can make progress on one without worsening the other.

Enter the policy maker, like many of us in this room. We seek to find common sense solutions that will help energy conservation and environment without economic harm or large costs. We propose them and the collective agreement that we must do something about our energy crisis before it blows up into a seemingly infinite number of aggrieved special interests. In Wisconsin we are trying to do a lot of the things talked about today:

* Tax gas-guzzlers,

* Spend the receipts (a fraction) on mass transit,

* Strengthen, or at least not weaken, building codes,

* Eliminate wasteful packaging, e.g. non-returnable cans and bottles,

* Control smoking to reduce ventilation and save energy,

* Eliminate gas lighting and artifical gas logs, and

* Implement peak load pricing for electricity.

The cries of opposition are loud and organized. Supporters, if there are any, agree, but sit quietly by, rather than jump into the fray. Much of the public is either cynical or apathetic. I hope it is the former because then rational common sense may work. The latter may postpone action until it is too late. In any case, we must face up to the fact that even "Pareto" policy tools, which to an economist means everyone is better off, may be difficult to sell. Labeling is such an example, but even then we are not going to have an easy time unless we are believed. Shortages are times when a lot of people become believers, but that often leads to action taken in haste or to deal with the immediate shortages. That approach unfortunately can't always be expected to be right every time.

I have four recommendations for policy makers which I try to follow to avoid opposition.

* Don't meddle unnecessarily. Even collecting information from people must be demonstrably useful for the problem at hand. Be a reluctant regulator, as we all are taxers.

* Emphasize that any energy saved will:

  (a) be good for all consumers by helping to hold down price and supply uncertainty,

  (b) be good for the protection of jobs and economic expansion,

  (c) help minimize damage to the environment.

* Regulation and allocation work best in crises; taxes and subsidies are best in shortages or relative surpluses.

- Collective good sense should serve as the predicate for common sense-based specific legislation and regulation. If we can't prove our case logically, then it is probably wrong.

Our sister states of Wisconsin and Minnesota have intelligent, rational, honest, hardworking people. It may sound "corny," but it is no less true that state officials, industry and consumers can, and must, trust one another. If we can develop "end-use" proposals that are presented in this broad context, we will avoid the pitfalls of crisis legislation because we will avoid the crisis that failure to heed these warnings will promulgate.

APPENDIX 1

ENERGY END-USE REGULATION: BEGINNING THE DEBATE

A seminar sponsored by the Minnesota Energy Agency and the American Association for the Advancement of Science with the cooperation of the Ford Foundation's Energy Policy Project. One in a series of AAAS public understanding of science seminars.

October 14, 1975
University of Minnesota, Landscape Arboretum, Chanhassen, Minnesota

AGENDA

9:00-9:15 Welcome

I. Is End-Use Regulation Desirable?

9:15-10:15 Speakers

"National Energy Conservation and End-Use Regulation"
David Sheridan
Energy Consultant and Free Lance Writer and Editor
Former Editor, Ford Foundation's Energy Policy Project

"What can End-Use Regulation Accomplish for Minnesota?"
John. P. Millhone
Director
Minnesota Energy Agency

presented by

Phillip W. Getts
Deputy Director
Minnesota Energy Agency

10:15-12:00 Panel Discussion

"Perspectives on End-Use Regulation"

Dean E. Abrahamson (moderator)
School of Public Affairs
University of Minnesota

Roland W. (Rollie) Comstock
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Phyllis Kahn
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St. Paul, Minnesota

Michael J. Murphy
Project Manager
Energy: A Future Choices Project
Upper Midwest Council
Minneapolis, Minnesota

12:00-1:30 Luncheon Speaker

"National Energy Policy and the Rocky Mountain West"

Philip R. (Bob) Grant
State House of Representatives
Albuquerque, New Mexico

II. What Should the Regulatory Mechanisms Be?

1:45-2:15 Speaker

"Tasks for the Participants"

Kennard C. Kaplan
Chairman
MACI Energy Task Force
Owatonna, Minnesota

2:15-3:45 Workshop Sessions

4:00-4:30 Panel on Workshop Conclusions

4:30-5:00 Summary of Day's Activities

Charles J. Cicchetti
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APPENDIX 2

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APPENDIX 3

BIOGRAPHIES OF SEMINAR SPEAKERS

DEAN E. ABRAHAMSON is professor of Public Affairs and chairman of the All-University Council on Environmental Quality at the University of Minnesota. His recent activities include membership on: the Advisory Board to the Ford Foundation's Energy Policy Project; the Board of Trustees of the Natural Resources Defense Council; the Liquid Metal Fast Breeder Reactor Advisory Panel to the U.S. General Accounting Office; the (now defunct) Consumer Advisory Council Committee to the Federal Energy Office; the Governor's Emergency Energy Committee (Minnesota); the editorial board of Environment magazine; and many other boards or committees. Dr. Abrahamson received a masters degree in physics from the University of Nebraska, a Ph.D. from the University of Minnesota with a major in anatomy and a minor in physics, and the doctor of medicine degree from the University of Minnesota.

CHARLES J. CICCHETTI, Director of the Wisconsin Office of Emergency Energy Assistance, is on leave from his position as associate professor of economics and environmental studies at the University of Wisconsin. He received the B.A. degree from Colorado College and the Ph. D. degree from Rutgers University. Mr. Cicchetti served with Resources for the Future in Washington, D.C. from 1969-1972. He has served as a consultant to the government on the subject of utility pricing and has appeared as an expert witness before state and federal agencies. His most recent publications are Perspectives on Power, which he coauthored with Edward Berlin and William Gillen for the Ford Foundation's Energy Policy Project, and Energy Systems Forecasting, Planning and Pricing, edited with Wes Foell. Mr. Cicchetti is also a coeditor of Land Economics.

ROLAND (ROLLIE) COMSTOCK is Vice President-Communications for Northern States Power Company in Minneapolis. He has practiced law both privately and with the power company as well as having published numerous articles on land-use planning, the sociological aspects of the environmental movement, and on the implications of long range energy futures, among other topics. Mr. Comstock is a member of the Governor's Natural Resources Advisory Council, Governor's Advisory Citizens Committee on Trail Development, Citizens League Long Range Policy Planning Task Force, National Academy of Engineering Committee on Power Plant Siting, among others. He was recently appointed by the Governor of Minnesota to the Commission on Minnesota's Future and, in October of 1974 was appointed to a 20 person Environmental Advisory Commission to the Federal Energy Agency.

As an elected member of the New Mexico State House of Representatives, PHILIP R. (BOB) GRANT, JR. serves on the Taxation and Revenue, and Natural Resources Committees, and is a member of the interim Legislative Energy Committee. Mr. Grant is a graduate of the University of New Mexico with a geology major and a biology minor. He is president of Ackerman-Grant, Inc. Realtors, and owner of Energy Resources Exploration, a geological consulting firm.

JOHN H. HERMAN is currently attorney and partner in the Minneapolis law firm of Dayton, Herman and Graham. Before joining the firm in 1973, Mr. Herman served for two years as staff attorney for the Minnesota Public Interest Research Group where he was responsible for litigation falling under the Environmental Rights Act and the Administrative Procedure Act, among others. Mr. Herman graduated from Yale College with a B.A. degree in economics and Harvard Law School, where he was awarded the J.D. degree. Following his years at Harvard, Mr. Herman taught international politics, economics and U.S. history at the Leysin American School, Leysin, Switzerland.

PHYLLIS KAHN was elected to a second term in office as a Minnesota State Representative in 1974. She currently serves on the Agriculture, Environment and Natural Resources and Appropriations Committees, and is Vice-Chairwoman of the State Department's Subdivision of Appropriations. Rep. Kahn has a physics degree from Cornell University and a Ph.D. in biophysics from Yale University, where she also conducted post-doctoral research. From 1965-1974 she was a research associate at the University of Minnesota in the Department of Genetics and Cell Biology and has authored numerous papers presented at scientific meetings and in journals.

KENNARD C. KAPLAN is Vice President of Owatonna Tool Company, Owatonna, Minnesota, where he has worked for sixteen years. He is also currently serving his second term directing the MACI Energy Task Force as an interested businessman. He is deeply concerned with energy policy as it affects the business community, the state and nation. Mr. Kaplan received a Masters of Business Administration from the University of Minnesota.

JOHN P. MILLHONE, who became director of the Minnesota Energy Agency on September 1, 1975, is the former director of the Iowa Energy Policy Council, to which he was appointed in 1974. Before that he had been a reporter for the Detroit Free Press and an editorial writer for the Des Moines Register and Tribune. Raised in Clarinda, Iowa, Mr. Millhone has his journalism degree from the University of Missouri and has done graduate work in law and political science.

As Project Manager, Future Choices: Energy, at the Upper Midwest Council, MICHAEL J. MURPHY is responsible for all Council undertakings in the field of energy and related matters. He has authored several working papers and formal reports dealing with issues related to specific energy supply and demand problems and with questions of state, regional and national energy policy. Mr. Murphy graduated from the University of Montana with degrees in psychology and sociology and after three years in the U.S. Army worked in various public relations and corporate affairs positions. He has been with the Council since February, 1974 and developed his interest in and knowledge about energy matters from three years of work for Northern States Power Company.

As editor of the Ford Foundation's Energy Policy Project, DAVID SHERIDAN supervised the publication of some twenty books on energy, including the Project's final report, A Time to Choose. He is now a free lance writer and editor as well as consultant to the General Accounting Office, the Ford Foundation and the 4H Clubs of America, among others. Mr. Sheridan has served as assistant editor of Life magazine where he also covered the manned space program and acted as the Washington correspondent. He spent from 1963-1966 in the Twin Cities working as a business and labor correspondent and reporter for the Minneapolis Tribune.

APPENDIX 4

Energy Regulation by the Federal Power Commission
Breyer, S. G. and MacAvoy, P. W., Brookings Institution, Washington, D. C., 1974

Energy Taxes and Subsidies
Gerard M. Brannon, Ballinger Pub. Co., Cambridge, Mass., 1974

"The Federal Energy Office as Regulator of the Energy Crisis"
P. W. MacAvoy, B. E. Stangle, J. B. Tepper, Technology Review, May 1975, p. 39-45

"A Guide to the Sources of the Economics of Regulation Literature"
Martin Lapinsky, Public Utilities Fortnightly, July 17, 1975, p. 21-29

"How Britain Rationed Electricity During Recent Power Crisis"
Sir Stanley Brown, Public Power, May-June, 1972, p.36

"How Business in Los Angeles Cut Energy Use by 20 Percent"
J. Wheeler, M. Graubard, J. P. Acton, Office of Conservation and Environment, Federal Energy Administration, Washington, D. C. 20461, Jan. 1975

"How to Ration Dwindling Gas Supplies"
Edward F. Renshaw, Public Utilities Fortnightly, May 8, 1975, p. 27-29

How to Save Gasoline: Public Policy Alternatives for the Automobile (Executive Summary) Sorrel Wildhorn, et al., Rand Corp., Santa Monica, CA, Oct. 1974, R-1560-1 NSF

"Legislation Affecting Energy Conservation"
Greiner, P. C., ASHRAE Journal, Vol. 16, April 1974, p. 33-34

"Limiting the Demand for Energy: Possible, Probable"
Darmstadter, J., Resources for the Future, Inc., 1755 Massachusetts Avenue, N.W., Washington, D. C. 20036, July 1974

"Potential Consequences of Deregulation of Transportation"
J. Johnson, Land Economics, Vol. 51, Feb. 1975, p. 58-71

Preliminary Investigation into Regulatory Powers and Policies on Electric Utility Peak Load Pricing
National Center for Energy Management and Power, Philadelphia, Pennsylvania, 1974

Regulation in the National Gas Producing Industry
Keith C. Brown, Resources for the Future, John's Hopkins University Press, 1972

Studies in Electric Utility Regulation
Charles J. Cicchetti and John Jurewitz, Ballinger Pub. Co., Cambridge, Massachsuetts, 1975

A Study of the Quarterly Demand for Gasoline and Impacts of Alternative Gasoline Taxes
Council on Environmental Quality, 772 Jackson Place, N.W., Washington, D.C., 20006, December, 1973

The magazine, Public Utilities Fortnightly regularly has articles on various aspects of end-use regulation. It is published by:

Public Utilities Reports, Inc.
Suite 500
1828 L Street, N.W.
Washington, D.C. 20036

The Minnesota Energy Agency was created by the Legislature in 1974. The Agency's principal functions include the accumulation and analysis of comprehensive and reliable energy data, assessment of future energy supply and demand, and creation and implementation of a state-wide energy conservation plan. The Agency is also responsible for certifying the need for large energy facilities and for administering state responsibilities under federal energy statutes.

The Ford Foundation's Energy Policy Project culminated a two year inquiry into the nation's energy crisis with the publication of "A Time to Choose" which presented broad recommendations concerning the nation's energy policy choices. Among the topics addressed are the energy industry's political and economic clout, nuclear energy, and coal strip mining.